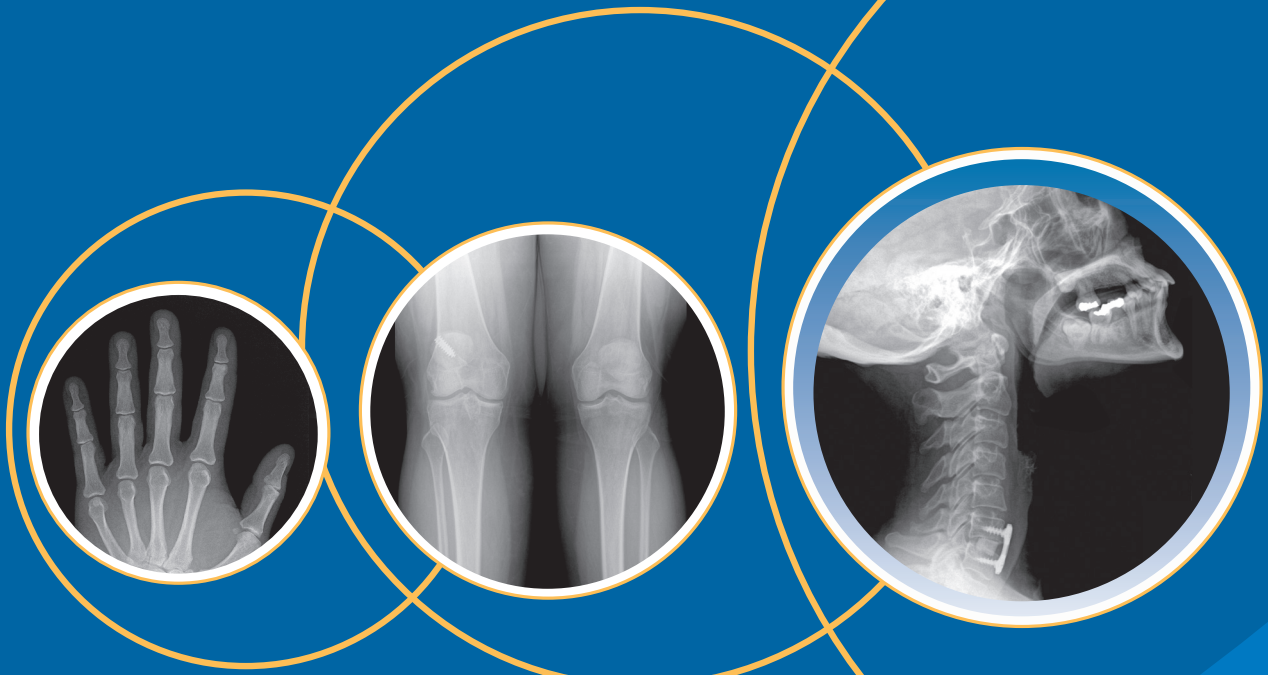
Film Digitizer

USER MANUAL



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Digital Imaging Made Simple.™

Forward

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Any one of the following ***i***CR products will be referred to as the "CR unit" throughout this document: ***i***CR 1000®, ***i***CR 1000 Dual®, ***i***CR 2600®, ***i***CR 2600 Dual®, ***i***CR 2600SF®, ***i***CR 3600®, ***i***CR Vet®, ***i***CR Vet Dual®, ***i***CR Mobile®, ***i***CR 1-D®, ***i***CR Chiro®, ***i***CR Chiro Dual® ***i***CR VERTX® Any one of the following ***i***CR products will be referred to as "***i***CR dual unit" throughout this document: ***i***CR 1000 Dual®, ***i***CR 2600 Dual®, ***i***CR Vet Dual®, ***i***CR Chiro Dual® Any one of the following ***i***CR products will be referred to as "***i***CR desktop unit" throughout this document: ***i***CR VERTX®. The ***i***DR®will be referred to as the "DR unit" throughout this document. Any one of the following ***i***CR products will be referred to as "film digitizer" throughout this document: ***i***CR-1000SL®, ***i***CR-612SL®, ***i***CR-2000SL®.

Contact Information

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Film Digitizer Information

Please Enter the details of the film digitizer here:

Model Number: _____

Serial Number: _____

Date Purchased: _____

Interface Type: USB 2.0 FireWire

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1. Introduction

1.1 Overview

The film digitizer is an ultra high resolution film scanning device. It is designed to scan sheets of film using patented technology. The films are transported past a scanning head without bending. This flat scan path results in ultra high resolution images with high fidelity across the entire image.

The film digitizer collects 16 Bit data that is converted to a DICOM 3.0 image and can be stored, viewed, manipulated, and sent to any other storage device, printer, or viewing station through DICOM. This document contains a basic technical overview of the film digitizer, including the driving software systems. A general description of the systems functionality and user interfaces will be described. Unpacking of the hardware is covered, as is software installation. This document is intended for users who need to understand the basic underlying principles of operation for the film digitizer.

1.2 Safety Information

Be sure to read and understand the installation and operating instructions before applying power to the film digitizer.

1.2.1 Conventions

⚠ DANGER: A DANGER indicates that personal injury may occur if the Service person does not perform the procedure correctly.
⚠ WARNING: A WARNING indicates that a user must be constantly aware of something that may prove hazardous.
⚠ CAUTION: A CAUTION indicates that damage to the product or user may occur if the user does not perform the procedure correctly.
Note: A NOTE indicates important information that helps you make better use of your CR and Software.
Notice: A NOTICE indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

1.2.2 Electrical Hazards

The equipment must be serviced by properly trained technicians certified by ***i***CRco, Inc. Do not connect the film digitizer with a damaged or sub-standard power cable. Do not use an extension cord with this device. The film digitizer should be properly grounded and

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power connections inspected to ensure safe operation. Use at least a 1300VA (780W) uninterruptible power supply (UPS) with this device, as it is sensitive to variations in power.

⚠ WARNING: This equipment is operated with hazardous voltages which can shock, burn, or cause death.

Notice: The film digitizer must be connected to a uninterruptible power supply (UPS). Failure to use a (UPS) will void the warranty.

1.3 FCC Notification

This equipment generates, uses, and can radiate radio frequency energy, and if not installed properly, could cause interference with radio communications.

1.4 Warranty Information

iCRco, Inc. ("***i***CRco") values your business and always endeavors to provide high quality products and services. All ***i***CRco products are provided with an initial warranty so you are covered from the date you purchase them. This limited warranty solely applies to new products manufactured by or for ***i***CRco and originally purchased from ***i***CRco or an authorized dealer of ***i***CRco products for your own use. In addition, an extended warranty is available for most new and recently purchased ***i***CRco products for an additional charge.

1.4.1 Hardware Limited Warranty

iCRco warrants its hardware products to be free of defects in materials and workmanship for a period of one (1) year from the date of original shipment from ***i***CRco subject to the limitations set forth herein. ***i***CRco phosphor plates sold with and for use in ***i***CRco cassettes are warranted to be free of defects in materials and workmanship for a period of (3) years from the date of original shipment subject to limitations set forth herein. If a product proves to be defective in material or workmanship during the warranty period, ***i***CRco will, at its sole option, repair or replace the product with a similar product. Repaired and replacement products may be or include refurbished or remanufactured parts. Any replacement item assumes the remaining warranty period of the original product. ***i***CRco provides no warranty for any third party hardware or software included with any product or later acquired.

1.4.2 Software Limited Warranty/Support

iCRco warrants that its QPC XSCAN32 software originally provided with any product will substantially conform to ***i***CRco's specifications and that the media, not including

hard drives, on which the software is furnished will be free from defects in materials and workmanship under normal use for a period of one (1) year from the date of original shipment from ***i***CRco. ***i***CRco's sole obligation under this warranty is limited to making reasonable efforts to ensure such conformity and to supply the consumer with a corrected version of the software as soon as it is practical after the consumer has notified ***i***CRco of any non conformity. ***i***CRco does not warrant that the operation of any software will be uninterrupted, glitch or error free or that functions contained in the software will operate in the combinations which may be selected for use by the user or meet the user's requirements. This limited software warranty will be void if the software is modified without the written approval of ***i***CRco or is used outside of the recommended parameters or equipment. ***i***CRco does not provide any warranty or support for any other software.

iCRco agrees to provide one (1) year of telephonic and/or e-mail based support for QPC XSCAN32 software originally provided with any new ***i***CRco product from the date of original shipment from ***i***CRco. All software support shall be limited to making reasonable efforts to resolve ***i***CRco software issues and shall be limited to ***i***CRco's regular business hours. In addition, ***i***CRco will provide revisions and upgrades to its software upon request (when available) during the first year after the software was originally shipped from the ***i***CRco factory. The initial support period will include support via remote login software (GoToMeeting), only if the customer has access to the Internet from that PC and only if the customer agrees ***i***CRco shall have no liability in connection with its support efforts. Remote login software allows ***i***CRco technical support to remotely access the customer's PC via the Internet for the purposes of rendering technical support. Please note that this warranty, including software support, does not include computer hardware, third party software or operating system or network issues, which are outside the control of ***i***CRco.

1.4.3 Warranty Product Technical Requirements

iCRco requires that all CR, Scanner and/or products requiring PCs be fitted and installed with an uninterruptible power supply ("UPS"). ***i***CRco recommends the APC BR1300LCD model UPS or equivalent. For warranty evaluation and service, ***i***CRco requires the customer to provide a network drop (DSL or Dial up) or the minimum of a phone line accessible by an extension cord to the product enabling ***i***CRco technicians to perform remote diagnostics on installed equipment. In addition, each ***i***CRco product must be installed, maintained and operated in accordance with the respective product manual. Failure to comply with these requirements will result in a voided warranty claim.

1.4.4 Requesting Warranty Service

For information on obtaining warranty service, call ***i***CRco's customer support at (310) 921-9559. In order to evaluate a warranty service request, ***i***CRco requires the following in-

formation: the ***i***CRco serial number of the product, a detailed description of the problem, customer name and contact information; product location and operating conditions; a copy of the purchase documents, and sufficient information and authorization, including a liability release as to any loss of data (that should always be backed up), software or network injury, or downtime, allowing ***i***CRco technicians remote access to the product. Product may not be returned to ***i***CRco without first obtaining a Return Material Authorization ("RMA") number from ***i***CRco. Prior to providing an RMA, ***i***CRco may require remote access to the product. If ***i***CRco determines that the product may be defective, is under warranty and necessitates a return to ***i***CRco for service, an RMA number and instructions for return of the product will be given. ***i***CRco is not responsible for any unauthorized returned product, i.e. one for which an RMA number has not been issued by ***i***CRco.

Warranty service requires all authorized returns be shipped to the ***i***CRco factory prepaid and insured. All such authorized returns are the customer's responsibility. For products sold and located within the United States, ***i***CRco will pay for return shipping.

Products being returned are only to be shipped in ***i***CRco approved shipping containers. The original box and packaging materials are approved and should be kept for moving and/or shipping the product. Original and approved packaging my also be purchased from ***i***CRco. ***i***CRco shall have no liability nor responsibility for warranty service to any product that is not shipped in an ***i***CRco approved shipping container or that is damaged from incorrect packaging or damaged during shipping.

1.4.5 Additional Warranty Limitations and Extent of Warranty

This warranty does not apply if the product has been damaged by accident, misuse or abuse. In addition, warranty service does not include the repair of failures or defects caused by: unauthorized attachments to any ***i***CRco product, unsuitable physical or operating environment, maintenance or repair by anyone other than ***i***CRco or the ***i***CRco authorized dealer that sold the product, operation of a product beyond its duty cycle, use of the product outside of its specifications, the use of supplies, parts, materials, software, or interfaces not furnished, authorized or recommended by ***i***CRco. If the product, including any software has been opened, tampered with, modified or altered in any way without written authorization by ***i***CRco, the warranty will also no longer apply.

This warranty applies only to products manufactured by, or for, ***i***CRco, and that can be identified by an "***i***CRco" serial number as originally affixed to the product. Any modification to the ***i***CRco serial number tag or its attachment to the product shall immediately void this warranty.

This warranty is non-transferable and subsequent owners must contact ***i***CRco to es-

tablish if the equipment is eligible for an extended warranty.

THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO ANY *i*CRco PRODUCT OTHER THAN AS SPECIFICALLY SET FORTH HEREIN, AND *i*CRco SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTIES OR CONDITIONS OF MERCHANT ABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND SATISFACTORY QUALITY. ANY WARRANTIES THAT MAY NOT BE DISCLAIMED UNDER APPLICABLE LAW ARE LIMITED IN DURATION TO THE INITIAL WARRANTY PERIOD AND NO WARRANTIES, EXPRESS OR IMPLIED, WILL APPLY AFTER THIS PERIOD. ALL INFORMATION, SPECIFICATIONS, PRICES, AND SERVICES ARE SUBJECT TO CHANGE AT ANY TIME WITHOUT NOTICE.

1.4.6 Limitation of Remedies and Liability/Exclusion of Damages

The exclusive remedy for any defective product is limited to the repair or replacement of the defective product. ***i***CRco shall have a reasonable time after determining that a defective product exists to repair or replace a defective product. ***i***CRco's entire liability for any product is limited to the actual purchase price for the product. This limitation applies even if ***i***CRco cannot or does not repair or replace any defective product and your exclusive remedy fails of its essential purpose.

IN NO EVENT WILL ***i***CRco BE LIABLE FOR ANY GENERAL, SPECIAL, CONSEQUENTIAL OR INCIDENTAL DAMAGES, including but not limited to, damages related to the loss of use, loss of recorded product, the installation of replacement product, or any inspection, testing, or redesign caused by any defect or by the repair or replacement of any product arising from a defect in any product. This exclusion of damages applies even if the customer advises ***i***CRco or an ***i***CRco dealer of the possibility of such damages. *This limitation of remedies also applies to claims against any suppliers or dealers of* ***i****CRco.* ***i****CRco and its suppliers' and dealers' limitations of remedies are not cumulative. Such suppliers and dealers are intended beneficiaries of this limitation.* ***i****CRco is not liable for any claim by or against the customer arising from a third party claim.*

2. Pre-Installation

2.1 Voltage Requirements

The film digitizer incorporates a universal power supply. ***i***CRco employs CE certified medical grade universal power supplies to allow the unit to work between 100 to 250V AC / 2.8A max; 47/63Hz. In order to run the unit with different power types, apply voltage to the power input module at the end of the film digitizer. For international units, a local power cord must be used that can handle the power requirements of the unit. A 13A/125V power cord is sufficient.

2.2 Environmental

The film digitizer should not be placed in a room with a film processor present. This will void the warranty. The humidity and temperature limits are 20 to 80% non-condensing, and 50 to 140°F (10 to 40°C) operating, respectively. The room should have good ventilation. Another factor to consider prior to installing the film digitizer is dust and particulates in the environment. The film digitizer is designed to be resistant to dust and particulates that may be present at the installation site.

2.3 System Specifications

Power Requirements

Domestic: 100 to 250V, 47/63Hz, 2.8A

Resolution Selections

iCR-1000SL	3.5–757 dpi in 1 pixel increments
iCR-612SL	3.5–875 dpi in 3 pixel increments
iCR-2000SL	4–1000 dpi in 3 pixel increments

Scan Speed

300 dpi (4x4K) 30 seconds
150 dpi (2x2K) 12 seconds
Dependant on processor speed, available RAM, disk access time & video card.

Temperature Conditions

50 to 140°F (10 to 40°C) – operating

Humidity

20 to 80% non-condensing

Grey Scale Resolution

16 bits (65,535 shades of gray)
12 to 8 bit conversion
24, 30, & 36 bit color options available

Interface

USB 2.0 or FireWire

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Dimensions

26L x 4W x 22H inches

Altitude

0 to 9,500 ft. - operating

Vibration/Acceleration

3-4G Max (in shipping)

Weight

34 lbs (14Kg)

2.4 Connectivity and Power Supply

The room needs to have wall power and **should not be used with an extension cord**. Please use at least a 1300VA (780W) UPS between the wall power and the film digitizer. The equipment is also required to have a network connection for fast technical support. Alternatively, the user must have a phone/fax line that can be connected to the PC in order to comply with ***i***CRco warranty terms.

2.5 Physical requirements

The film digitizer requires a stable operating environment. It is important the system is placed on a table, stand or wall mount that provides adequate support.

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3. Software Installation

3.1 Driver Installation

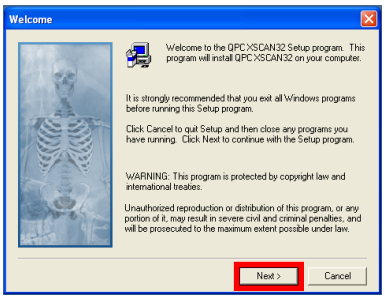
Installation of drivers are automatic with the installation of the ***i***CRco software (i.e., QPC XSCAN32).

3.2 Installing QPC XSCAN32

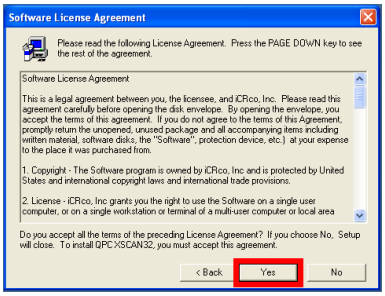
QPC XSCAN32 software comes bundled with the film digitizer. This software package will allow the user to interface with the film digitizer.

Note: If you have QPC XSCAN32 already installed on your computer and it is running while you are trying to install the new version, an error will appear in the install process. Please close QPC XSCAN32 and reinstall the new version.

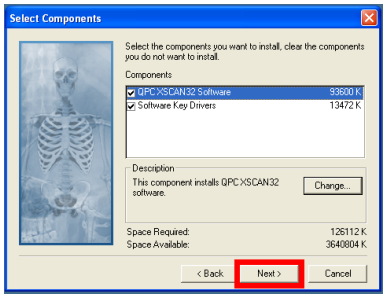
1. Insert the media containing the QPC XSCAN32 installer into the computer. Navigate to the *QPC XSCAN32* folder.
2. Launch the QPC XSCAN32 installer by double clicking **Setup.exe**.
3. Click **Next** at the welcome screen.


Welcome
Welcome to the QPC XSCAN32 Setup program. This program will install QPC XSCAN32 on your computer.
It is strongly recommended that you exit all Windows programs before running this Setup program.
Click Cancel to quit Setup and then close any programs you have running. Click Next to continue with the Setup program.
WARNING: This program is protected by copyright law and international treaties.
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
Next >
Cancel

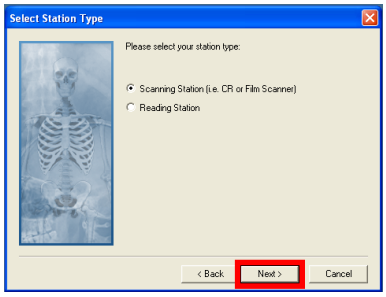
4. Click **Yes** to agree to the Software License Agreement.


Software License Agreement
Please read the following License Agreement. Press the PAGE DOWN key to see the rest of the agreement.
Software License Agreement
This is a legal agreement between you, the licensee, and iCRco, Inc. Please read this agreement carefully before opening the disk envelope. By opening the envelope, you accept the terms of this agreement. If you do not agree to the terms of this Agreement, promptly return the unopened, unused package and all accompanying items including written material, software disks, the "Software", protection device, etc.) at your expense to the place it was purchased from.
1. Copyright - The Software program is owned by iCRco, Inc and is protected by United States and international copyright laws and international trade provisions.
2. License - iCRco, Inc grants you the right to use the Software on a single user computer, or on a single workstation or terminal of a multi-user computer or local area
Do you accept all the terms of the preceding License Agreement? If you choose No, Setup will close. To install QPC XSCAN32, you must accept this agreement.
< Back
Yes
No

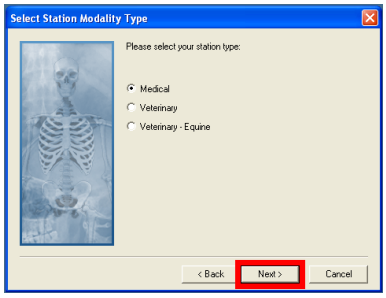
5. Make sure both *QPC XSCAN32 Software* and *Software Key Driver* boxes are checked, then click **Next**.


Select Components
Select the components you want to install, clear the components you do not want to install.
Components
QPC XSCAN32 Software 93600 K
Software Key Drivers 13472 K
Description
This component installs QPC XSCAN32 software.
Change...
Space Required: 126112 K
Space Available: 3640804 K
< Back
Next >
Cancel

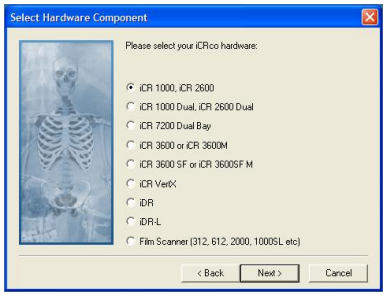
6. Select *Scanning Station* or *Reading Station* depending on the use, then click **Next** to continue.



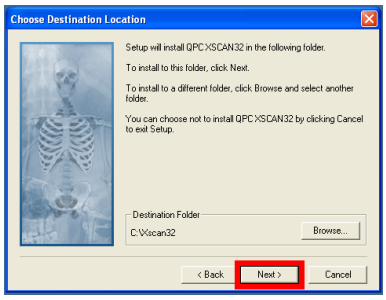
7. Select the appropriate modality, then click **Next** to continue.



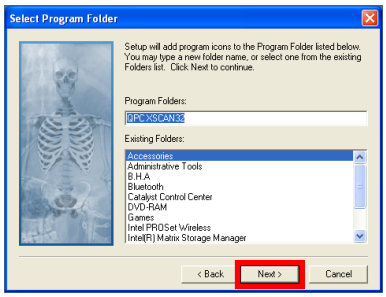
8. Select the appropriate hardware profile, then click **Next** to continue.



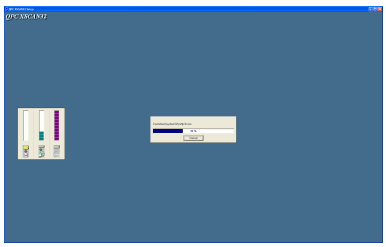
9. The Destination Folder should be set to *C:\Xscan32*, then click **Next** to continue.


Choose Destination Location
Setup will install QPCXSCAN32 in the following folder.
To install to this folder, click Next.
To install to a different folder, click Browse and select another folder.
You can choose not to install QPCXSCAN32 by clicking Cancel to exit Setup.
Destination Folder
C:\Xscan32
Browse...
< Back
Next >
Cancel

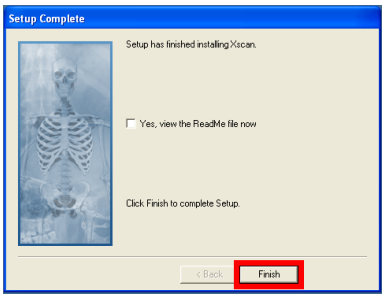
10. The Program Folder name should be set to *QPC XSCAN32*, then click **Next**.



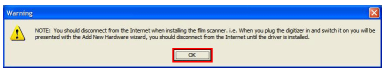
11. QPC XSCAN32 will begin to install. Be patient while XSCAN32 installs.



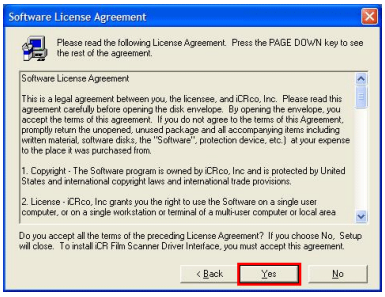
12. Click **Finish** to complete the installation of QPC XSCAN32. The installer will exit.



13. A new installer program will automatically open to install the film digitizer drivers. As the prompt indicates, please disconnect the network cable from the computer when plugging in the film digitizer. **Do not** plug in the film digitizer until after the software installation has finished. Click **Ok** to continue.



14. Click **Yes** to agree to the Software License Agreement.


Software License Agreement
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This is a legal agreement between you, the licensee, and iCRco, Inc. Please read this agreement carefully before opening the disk envelope. By opening the envelope, you accept the terms of this agreement. If you do not agree to the terms of this Agreement, promptly return the unopened, unused package and all accompanying items including written material, software disks, the "Software", protection device, etc.) at your expense to the place it was purchased from.
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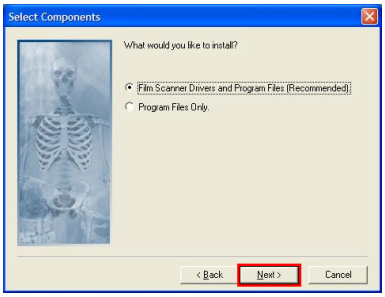
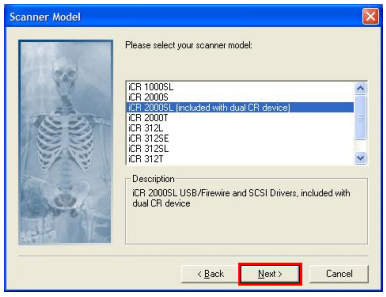
2. License - iCRco, Inc grants you the right to use the Software on a single user computer, or on a single workstation or terminal of a multi-user computer or local area
Do you accept all the terms of the preceding License Agreement? If you choose No, Setup will close. To install iCR Film Scanner Driver Interface, you must accept this agreement.
< Back
Yes
No

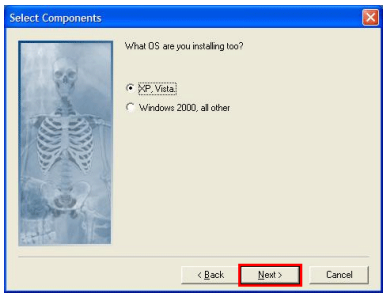
15. Select the radio dialog box for *Film Scanner Drivers and Program Files (Recommended)*, then click **Next** to continue..



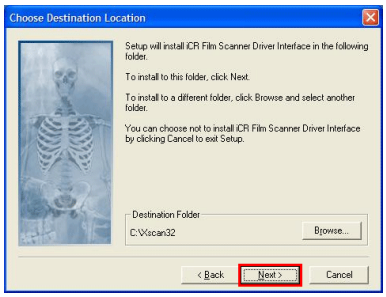
16. Select the appropriate scanner model, then click **Next** to continue.



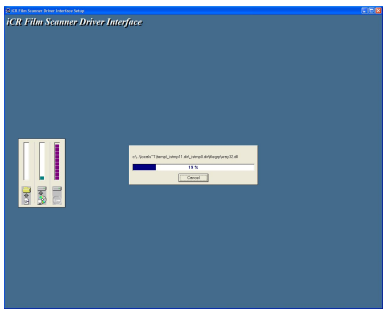
17. Select the appropriate Operating System, then click **Next** to continue.



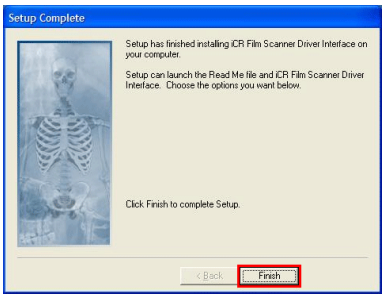
18. The destination location should be *C:\Xscan32*, then click **Next** to continue.


Choose Destination Location
Setup will install iCR Film Scanner Driver Interface in the following folder.
To install to this folder, click Next.
To install to a different folder, click Browse and select another folder.
You can choose not to install iCR Film Scanner Driver Interface by clicking Cancel to exit Setup.
Destination Folder
C:\Xscan32
Browse...
< Back
Next >
Cancel

19. The drivers will begin to install, please be patient during installation.



20. Click **Finish** to complete the installation. The installer will exit.

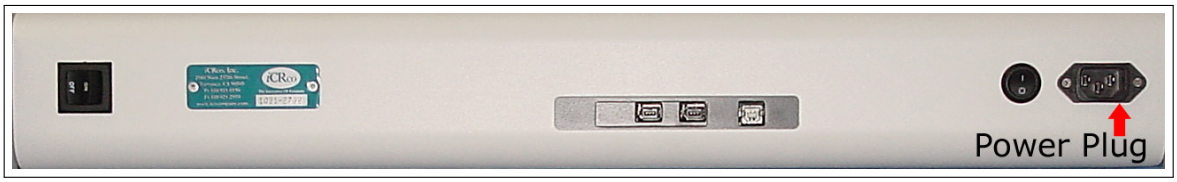

Setup Complete
Setup has finished installing iCR Film Scanner Driver Interface on your computer.
Setup can launch the Read Me file and iCR Film Scanner Driver Interface. Choose the options you want below.
Click Finish to complete Setup.
< Back
Finish

4. Hardware Installation

4.1 Unpacking Instructions

1. Open the box from the top.
2. Remove any small accessories loaded into the top of the box.
3. With at least two (2) people, lift the film digitizer out of the box.
   ⚠ CAUTION: Always practice proper heavy lifting procedures. Failure to practice proper lifting procedures may result in injury or damage to the unit.
4. Store the box and any foam inserts somewhere safe & dry, so if the film digitizer needs to be shipped again, there are packing materials available.

4.2 Installing Power Cable



1. The power plug for the film digitizer is located on the bottom of the unit.
2. Plug the power cable for the film digitizer into the power switch unit.
3. Plug the other end of the power switch cord into the UPS.
4. Make sure the UPS is not in bypass mode.
5. Plug the UPS into a standard wall outlet.

4.2.1 International Power Cable

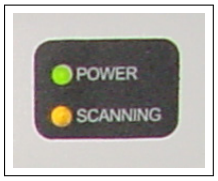
The film digitizer utilizes an international IEC grade connector for the power cable. Systems are shipped with a standard NEMA 5-15 hospital grade cable. The cable needs to be changed depending on the male end, which varies from country to country.

4.3 Power Switch Location

There are two power switches for the film digitizer and both are located on the bottom of the film digitizer. When facing the front of the film digitizer, the round power switch to the right powers on the scan module, while the square power switch on the left powers on the light box.

4.4 Power and Scan Lights

The power and scan lights are located on the upper right-hand side of the film digitizer. When the unit is powered on, the green light is illuminated. While the unit is scanning the yellow light will blink.



4.5 USB 2.0 & FireWire Cable Installation

USB 2.0 Cables:

1. Visually inspect the cable to ensure that it is not cut, frayed, or otherwise damaged.
2. Plug the USB B cable end to the film digitizer's USB port.
3. Plug the USB A cable end into a free USB 2.0 port on the computer.

FireWire Cables:

1. Visually inspect the cable to ensure that it is not cut, frayed, or otherwise damaged.
2. Plug one end of the FireWire cable into the film digitizer's FireWire port.
3. Plug the other end of the FireWire cable into a free FireWire port on the computer.

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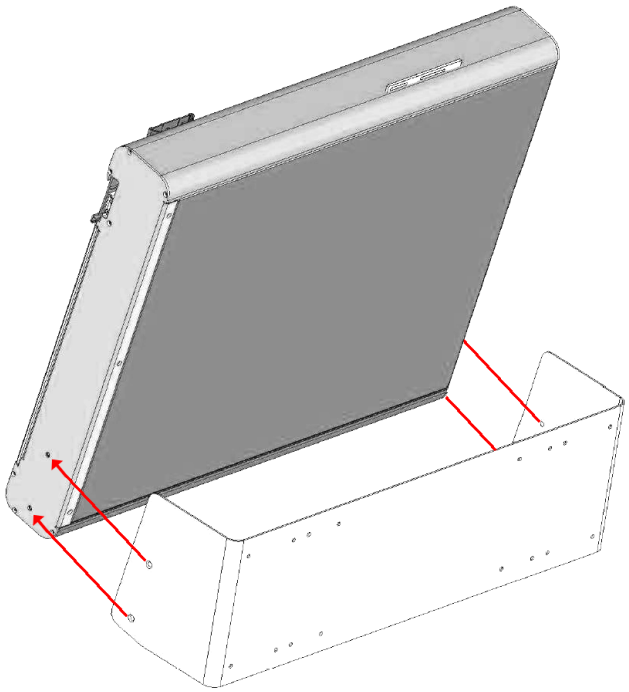
4.6 Wall Mounting Plates

Notice: Wall mounting plates must be installed by a licensed contractor.

1. Attach the wall mounting plate to wall at desired height. Allow the contractor to determine the proper location & screws to fasten the wall mounting plate to the wall.
2. Remove four (4) 10-32 x $\frac{1}{2}$" flat head screws from the film digitizer's feet.
   CAUTION: Always practice proper heavy lifting procedures. Improper lifting may cause injury.
3. With at least two people, lift the film digitizer into the wall mounting plate.
4. Fasten the film digitizer to the wall mount plate using the same four (4) 10-32 x $\frac{1}{2}$" flat head screws from the film digitizer's feet, as illustrated in the figure below:



Use four (4) 10-32 x 1/2" flat head screws to fasten the film digitizer to the wall mount plate.

5. System Operation

5.1 Power-Up

1. Make sure the power cord is properly installed in the power module.
2. Make sure the power cord is properly installed in the UPS and the UPS is plugged into a standard wall outlet.
3. Make sure the USB 2.0 or FireWire cord is properly installed in the unit and computer.
4. Power on the computer.
5. Power on the film digitizer by pressing both power switches.

5.2 Film Handling & Loading

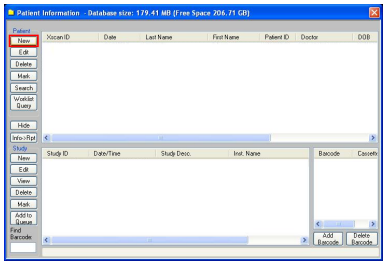
1. Orient the film such that the longer edge is horizontal and any patient information or markers are on the bottom edge of the film.
2. Load the film onto the light box, pushing the top edge of the film into the film digitizer's film holder. Ensure that the film is square to the bezel of the film digitizer.

Correct. The film is square to the bezel and the top edge is all the way in the film holder.	**Incorrect.** The film is not square to the bezel.	**Incorrect.** The film is not loaded with the longer side in the film holder.

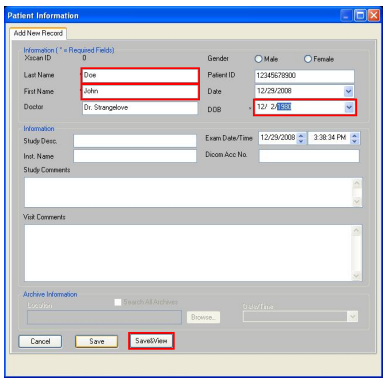
5.3 Acquiring an Image

Note: The instructions in this section represent a typical workflow. Every workflow varies in process.

1. Load the film onto the film digitizer's bezel as described in Section 5.2 on page 21.
2. Open QPC XSCAN32.
3. Create or edit a patient profile. To do this, click **New** or **Edit**, respectively.

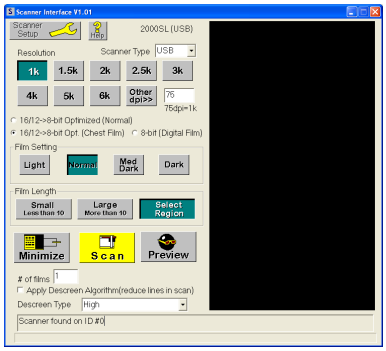


4. If creating a new patient, enter the relevant patient info, or if editing a patient, change the information accordingly, then click **Save and View.**

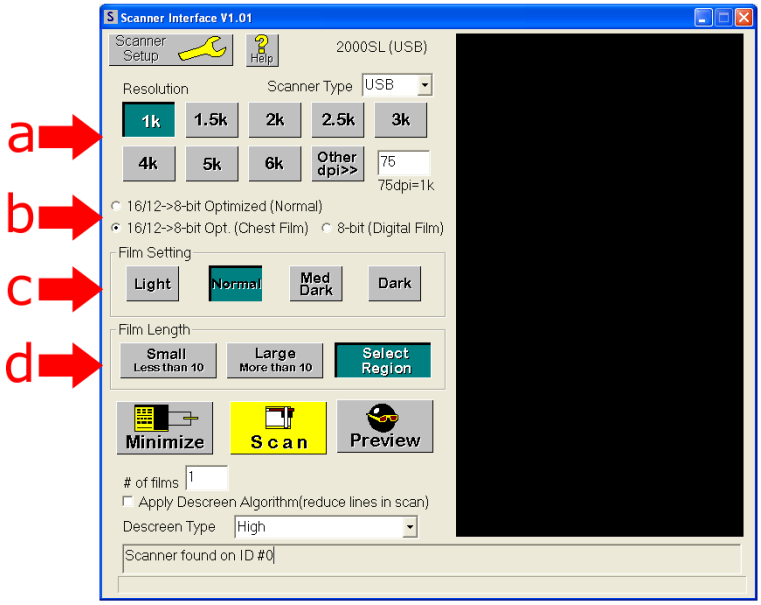


5. Click on **Scan** to bring up the Quality Processing Center Scan dialog. (if it is a patient with no images the scan dialog will automatically appear).

6. The ***i***CR Quality Processing Center dialog will appear.



7. In the scan interface, the user may:



(a) Choose the resolution of the scan.

(b) Choose the bit depth of the image.

(c) Choose a film density setting, i.e., if your image is under exposed, choose *dark*.

(d) Choose a film size.

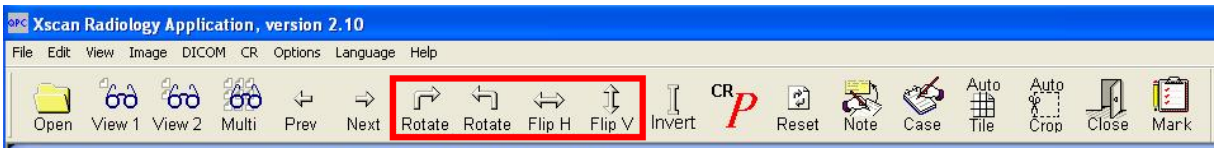
Note: The **Select Region** button will allow the user to select what region will be scanned. When the **Select Region** button is selected, it is best practice to use the **Preview** button to make a preview scan, then select the region to be scanned.

8. Click the **Scan** button to initiate the scanning process.

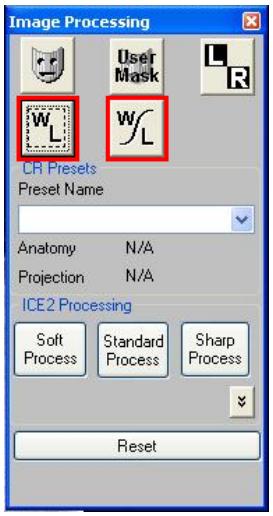
9. The preview window will display the image as it is scanning. Once it has finished scanning it will automatically import the image into QPC XSCAN32.

10. Open the scanned image by double clicking on the thumbnail.

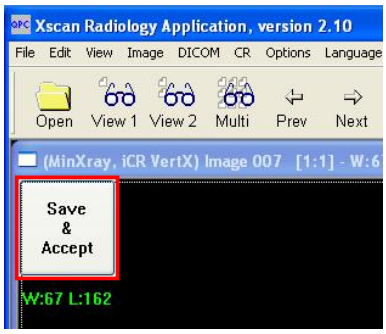
11. Rotate/Flip to correct orientation using the **Rotate** and/or **Flip** buttons in the main tool bar.



12. Window/Level the image using the Window/Level or Smart Box tools.



13. Accept and Save the image to save the processing and W/L settings by clicking the **Save and Accept** button in the upper left hand corner of the image.


Xscan Radiology Application, version 2.10
File Edit View Image DICOM CR Options Language
Open View 1 View 2 Multi Prev Next
(MinXray, iCR VertX) Image 007 [1:1] - W:6
Save & Accept
W:67 L:162

14. Return to the *Patient Information* window. Select the patient(s) to send to a PACS or viewing station. If you wish to send more than one patient, hold the Ctrl key down and left mouse click to select multiple patients.

15. After selecting the patient(s), click the **DICOM Send** button.

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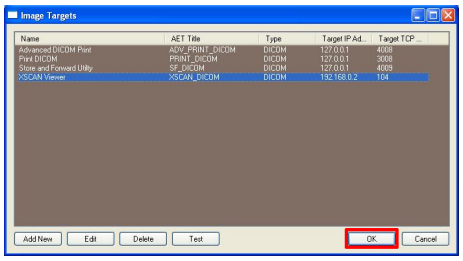
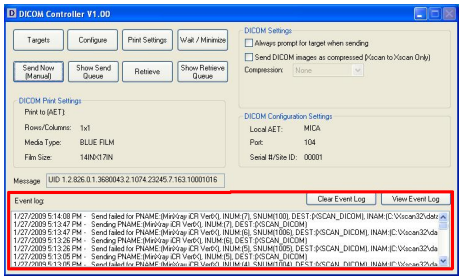
16. The *DICOM Targets* window will appear, choose the desired target, then click **OK**



17. The results of the DICOM Send will appear in the *DICOM Controller* window's Event log.



6. QPC XSCAN32 Software Functions

6.1 Creating/Editing Patients

1. Open XSCAN, then click the **New** button in the *Patient Information* dialog. Alternatively, if the patient is already in the patient list, select the patient and click the **Edit** button on the Patient information dialog.

2. Enter the patient details into the appropriate fields in the dialog box. The user also needs to enter the exam information for the patient.
   Note: Last Name, First Name, Date and DOB are required fields. The use can also make Patient ID a required field by going to: *Options* → *Preferences* → *Defaults* tab.

3. Click the **Save** or **Save and View** button after the patient details have been entered.
   Note: The **Save and View** button will create/edit the patient and open the exam immediately for viewing or scanning of images.

4. To create an additional exam for the patient, return to the *Patient Information* dialog, then click the **New** button under *Exam*. Enter in the exam information.
   Note: When the user opens an exam with no images QPC XSCAN32 will automatically open the default scan interface. The user can change the the default scan interface by going to: *Options* → *Preferences* → *Scanner* tab.

6.2 Scan Interface

The scan interface is used to start the scan, as well as set-up parameters relating to the scan quality. It is available by clicking the **Scan** button in the main toolbar, after opening a patient from the *Patient Worklist*. The user may also cancel, rest, and close the scan interface.

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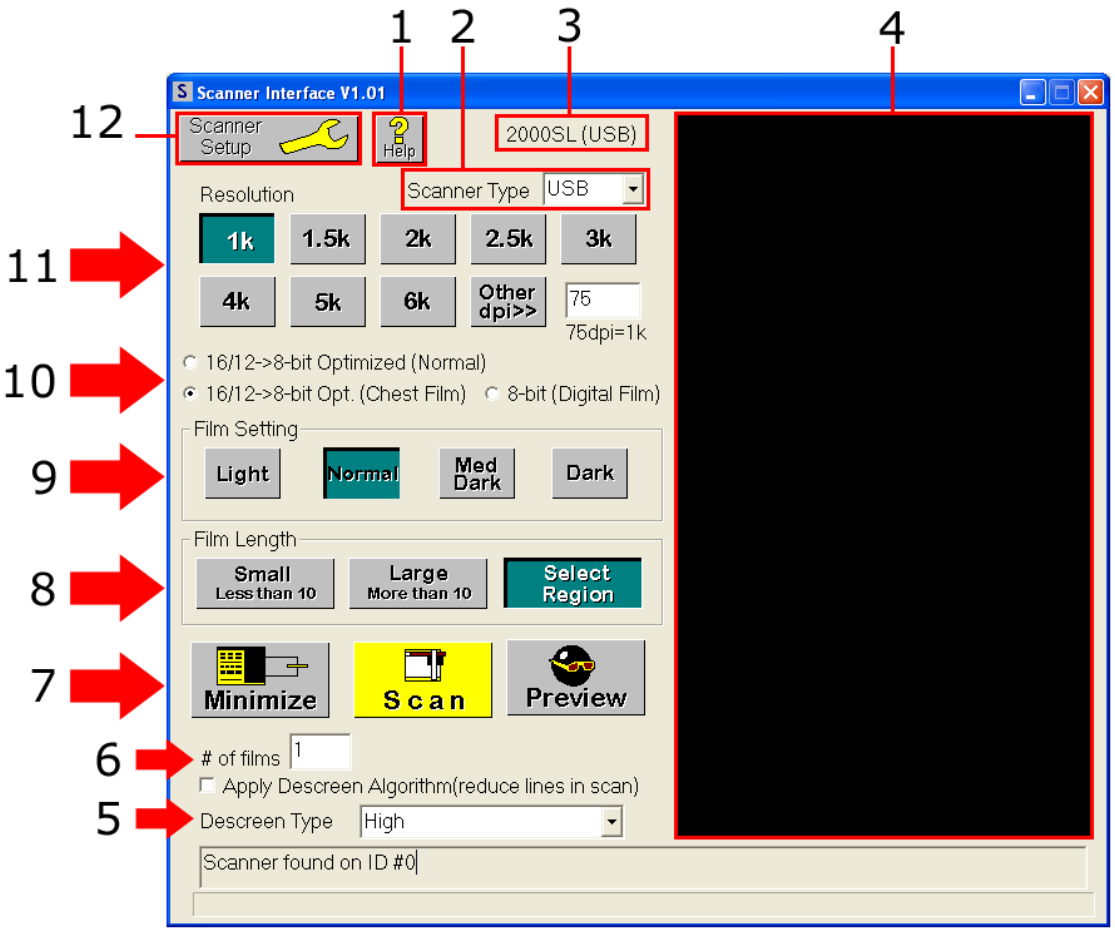


1. Brings up the Help dialog.
2. Allows the user to select the film digitizer connection type: USB, FireWire, or SCSI.
3. Indicates the film digitizer model.
4. Scan preview window. As the film is scanning, the image will show up in the black box.
5. Allows the user to apply a descreen algorithm (with the box checked) and set the algorithm intensity ("Descreen Type").
6. Used for automatic document feeding. ***i***CRco film digitizers do not support ADF, please leave the number of films set at one.
7. The **Minimize** button will minimize the scan interface dialog. The **Scan** button will cause the film digitizer to begin scanning. The **Preview** button will quickly scan the film and give the user a preview.

8. *Film Length* allows the user to select the film size to be scanned.
9. *Film Setting* allows the user to compensate for variances in film density.
10. Allows the user to select the bit-depth of the image.
11. Allows the user to select the resolution of the image.
12. Opens the *Scanner Setup* dialog.

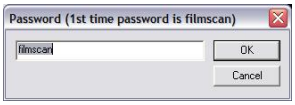
6.3 Scanner Setup Window

The Scanner Setup Window allows the user to set up the operating parameters of the film digitizer.

6.3.1 Accessing the Scanner Setup

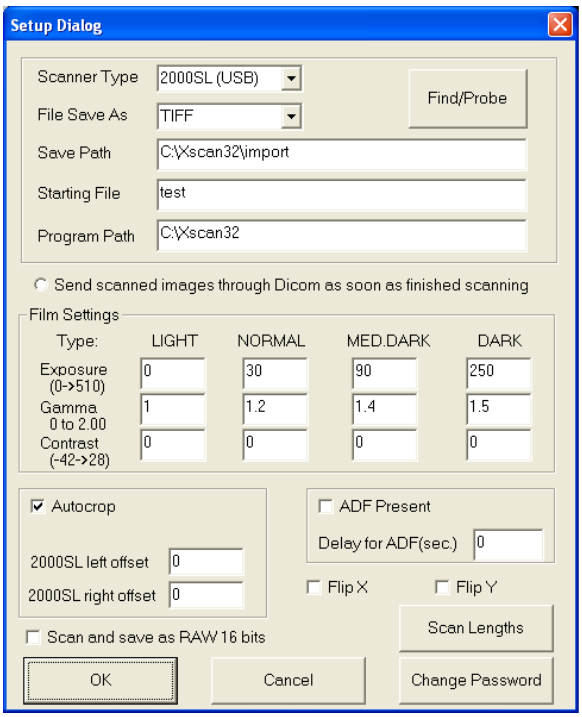
1. Click on the **Scan** button, and then from the Scan interface click on the **Scanner Setup** button.

2. The *Password* dialog will appear. Enter the password (if it is not already entered).



3. The *Scanner Setup* dialog will appear.

6.3.2 Scanner Setup Operating Parameters



Scanner Type

The *Scanner Type* drop down menu sets the Windows driver to be used with the film digitizer. This setting is automatically chosen during the installation of QPC XSCAN32 and **should not be changed**.

⚠ CAUTION: Changing this parameter may cause the unit to malfunction.

File Save As

Allows the user to select the file type of the scanned image. The default setting is TIFF.

Find/Probe

Clicking this button accesses the SCSI chain interface, allowing the user to "probe" the system for SCSI devices (including scanners) and update the list.

Note: This is a legacy setting, newer film digitizers cannot connect via SCSI.

Save Path

This sets the directory into which images are saved. This path is critical for the correct operation of the software, and the user should consult ***i***CRco before making any changes.

Start Name

This sets the name given to the image file when saved. Again, the user should consult ***i***CRco before making any changes.

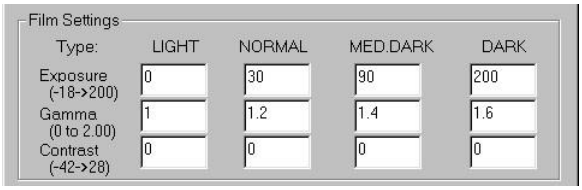
Send Via DICOM

Selecting this option causes images to be sent immediately via DICOM Send, once they have been scanned and processed. Images are sent to the currently selected target.

Film Settings

The main scan interface has four buttons to select settings for light, normal, medium-dark and dark films:

The parameters for these buttons are setup in the *Film Settings* section of the set-up window:



There are three parameters for each button: *Exposure*, *Gamma* and *Contrast*. ***i***CRco recommends consulting an Technical Support before adjusting any settings, as adjustments to this settings may have a dramatic effect on image quality.

Autocrop

Turns autocropping on or off. This function is selected or deselected automatically depending upon the scan parameter selections made from the main scanning dialog.

ADF Present

iCRco film digitizers do not support automatic document feeding. Please **do not** enable this feature.

Cancel

Exits the Setup program without saving any changes

OK

Exits the Setup program saving all changes made. Click the **OK** button if the Password dialog pops-up again.

6.4 Default Mouse Functions for Image Manipulation

Windows / Level Images

The middle mouse button is used to window / level images. Hold down the middle mouse button (holding the CTRL key and right mouse clicking will also window/level) and move the mouse vertically to adjust the brightness of the image or move the mouse horizontally to adjust the contrast of the image.

Magnify (Zooming) Images

The right mouse button is used to magnify images. Hold down the right mouse button and move the mouse vertically to magnify or reduce the size of the image. (Alternatively the user can hold down the middle mouse button and move the mouse vertically to magnify.) To magnify an area of interest in the image, simultaneously hold down the Shift key and the Left mouse button and move it over the area of interest. Similarly, on a laptop the user may right click and drag along the touch pad interface to zoom.

Panning Images

Hold down the Left mouse button and move the mouse around the screen. This is useful when the image is magnified. To pan through the image faster, simultaneously hold down the Ctrl key and the Left mouse button.

6.5 Image Processing Dialog Box

Window / Level

Holding the middle mouse button (simultaneously holding the CTRL key and right mouse clicking will also window/level) down and moving the mouse vertically will adjust the level and horizontally will adjust the window.

To window and level through more gray values at a time, simultaneously hold down

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the Ctrl key and use the Middle Scroll button. This will perform a faster window and level on images with a large histogram (i.e. CR and DR images). To window and level through less gray values at a time (i.e., single step through window and level values) simultaneously hold down the Shift key and use the Middle Scroll button. This will perform a slower window and level on images with a smaller histogram (i.e., CT and MR images).

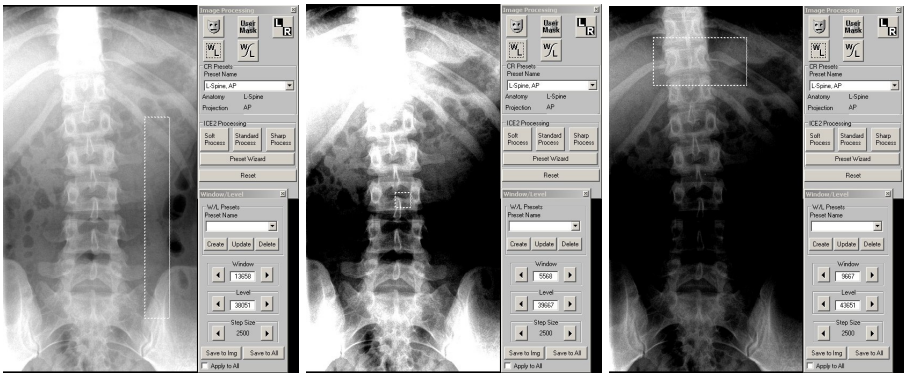
Smart Box Window/Level

The Smart Box feature can be activated from the processing toolbar by clicking the icon in the toolbar. A box enclosed in dashed lines will appear on the image. This is the Smart Box's representation of the Auto Window/Function feature.

To resize the smart box hold down the left mouse button on the border of the smart box and move the mouse forwards and backwards (or up and down if adjusting the bottom edge).

To resize both edges of the smart box at the same time hold down the Ctrl key and Left mouse button on any of the four corners of the smart box and move the mouse.

To move the smart box around the image hold down the left mouse button anywhere inside the smart box and drag the mouse around the image.



The Smart Box's size and position can be adjusted to yield different results. This allows the user fast and efficient image processing methods.

Left and Right CR Markers

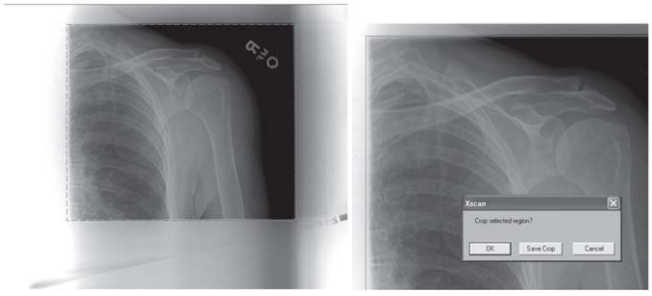
1. Open an image for viewing.
2. Select the Left/Right Markers button to apply a Left or Right marker to the image.

3. Select either the Left or Right marker. When the user clicks on the Left/Right Marker button the Left marker icon will appear. If the user clicks the Left/Right Marker button again, the Right marker icon will appear. Clicking again will toggle back to the Left marker.
4. Move the mouse onto the part of the image where the marker needs to appear. When the user moves the mouse over the image a Left or Right marker icon will appear in place of the mouse.
5. Click on the image to place the icon.
6. To remove the marker click on the Left/Right Marker button again.

CR Cropping

1. Open the image that needs to be cropped.
2. Select the **Crop** button from the main toolbar.
3. Hold down the left mouse button to select the region that needs cropping.
4. When the mouse is released, the area to be cropped will be surrounded by a red line. A message box will appear asking to confirm the selected region.
5. To confirm the region click **Ok**.
6. The new image will be created in the same study and will open automatically for viewing.

Cropping Example:

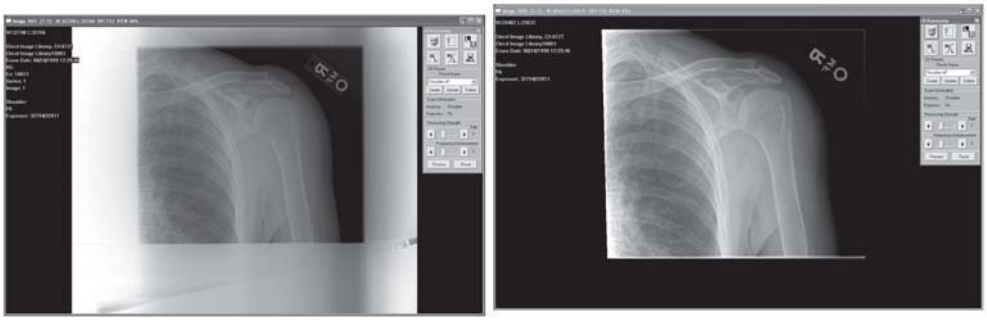


Before **After**

CR Masking

1. Open an image for viewing.
2. Click the **Mask** button.
3. To remove the collimation mask, select the **Mask** button again.

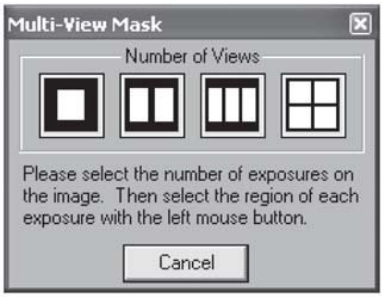
CR Masking Example



Before Masking After Masking

CR User Masking

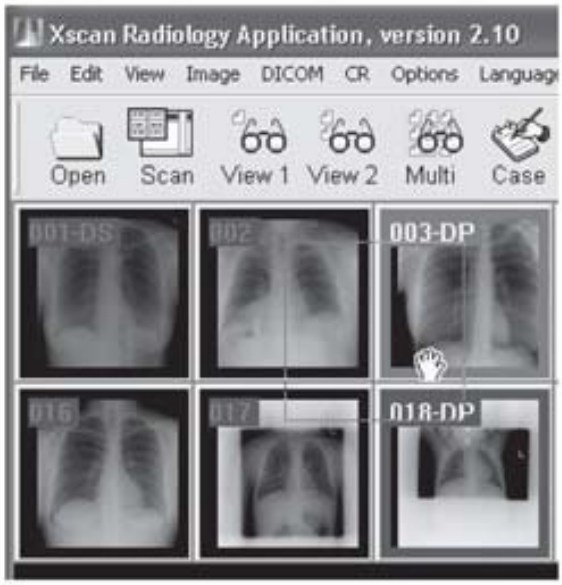
1. Open an image for viewing.
2. Click the **User Mask** button.
3. Select the number of views from the *Multi-View Mask dialog*, (i.e., if there are two hand exposures on one image, select the two-view button).


Multi-View Mask
Number of Views
Please select the number of exposures on the image. Then select the region of each exposure with the left mouse button.
Cancel

4. Hold the left mouse button down on the start region and move the mouse to the end of the mask region.
5. Repeat step 4 for each exposure. After the user has completed selecting the number of exposures, the masks will appear on the image.
6. To remove the User Mask, select the **User Mask** button.

Moving Icon Thumbnails

1. Open a patient study for viewing.
2. Hold down the Ctrl key while clicking the left mouse button on the image that needs to be moved. The arrow icon will change to a hand icon . The icon highlighted in red shows the location where the image will be dropped.
3. To drop the icon, simply release the left mouse button.



Note: If the moving icon is highlighted, this indicates that it will return to its original position. If an icon is dragged forwards in position (i.e. the image number of the highlighted icon is higher than the moving icon) then all icons between its original position and its new position will move backwards and each image number decreases by one. If an icon is dragged backwards in position (i.e. the image number of the highlighted icon is less than the moving icon) then all icons between its original position and its new position will move forward and each image number increases by one. If no icons are highlighted when dragging, then the image will be returned to its original position.

CR Processing

1. Open an image for viewing.
2. Select an anatomy from the *CR Preset* box.
3. Click the **Process** button to begin the processing.
4. The user may press the **Reset** button to restore the original image data set.
   Note: the user can also press the Process button again and the original data set will be automatically restored and processed again.
5. To optimize processing strength, change Gain and Frequency Enhancement as needed.
   Note: The user can update the CR preset by selecting the Update button, which will ensure that these processing strengths will be used each time with the currently selected anatomy.

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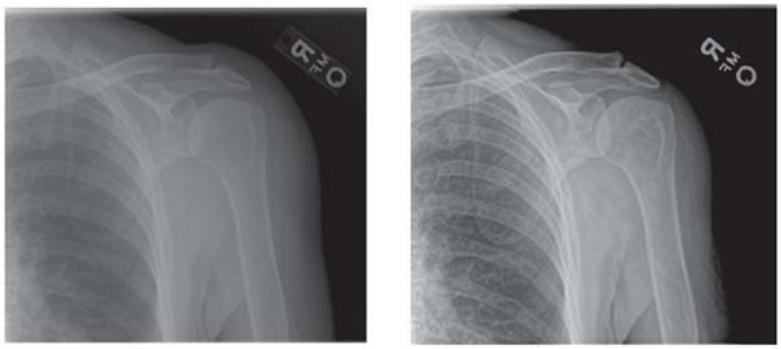
CR Processing Example:

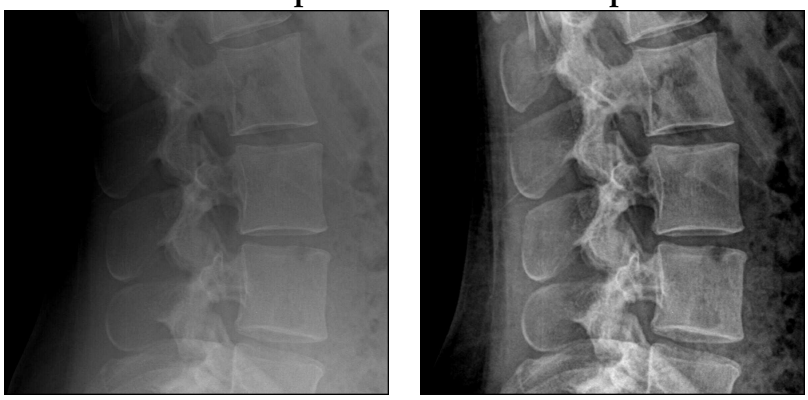


Original Image Processed Image

About Advanced ICE-2 Processing

ICE-2 is a state-of-the-art image processing package that automatically enhances and optimizes the diagnostic quality of digital radiographic images. ICE-2 enables the user more flexibility through the "soft" and "sharp" processing options. The "soft" option produces an image with less enhancement thereby making the image more "film-like." The "sharp" button applies more enhancement to the image.

ICE2 Example: Lateral Lumber Spine



Conventional Processing ICE-2 Processing

Clicking the drop down menu button located below the "sharp" option gives the user the ability to refine the image further. After the user clicks on the drop down menu, an interface appears showing two sliders. The first slider enhances edges and contrast as the slider is moved to the right. The second slider adjusts image smoothness. Adjust each slider until the desired result is achieved. Click on the **Save As** button to save the settings for Soft, Standard or Sharp processing.

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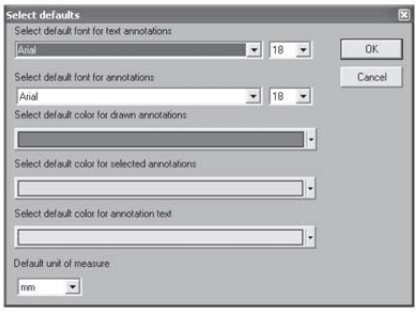
6.6 Annotations

Hide / Show Annotations

Selecting the Hide / Show Annotations button will toggle the visibility of the Annotations tool pallet.

Annotation Defaults

Used to change the default font name, font size and colors.
Select the Defaults D button on the annotations toolbar.



Embed Annotations in Image

Clicking on the Embed Annotations in Image button will save all the annotations into the image, enabling the user to DICOM send images with annotations. If the annotations are not embedded, they will not be sent with the image when doing a DICOM send.

Line Annotations

Creates a straight line on the image.

1. Select the **Line** button from the annotations toolbar.
2. Left mouse click on the area of the image to set the first endpoint.
3. Move the mouse to where the second endpoint will be.
4. Left mouse click on the are of the image to set the second endpoint.

Extended Line Annotation

Creates a straight line that passes through the image.

1. Select the **Extended Line** from the annotations toolbar.

2. Left mouse click on the area of the image to set the first endpoint.
   Note: The line will be extended through the entire image.
3. Move the mouse to where the second endpoint will be.
4. Left mouse click on the area of the image to set the second endpoint.

Arrow Annotation

Creates an arrow on the image, which points to a region of interest.

1. Select the **Arrow** button from the annotations toolbar.
2. Left mouse click on the area of the image to set the end of the arrow.
3. Move the mouse to where the arrow should point.
4. Left mouse click to set the second endpoint of the arrow head.

Cross Hair Annotation

Creates a cross hair on the image.

1. Select the **Cross Hair** button from the annotations toolbar.
2. Left mouse click on the area of the image to set the start point of the cross hair.
3. Move the mouse to where the second endpoint will be.
4. Left mouse click on the area of the image to set the cross hair.

Free Hand Annotation

Allows user to draw freehand on the image.

1. Select the **Free Hand** button from the annotations toolbar.
2. Hold down the left mouse button on the part of the image that is desired to start drawing then drag the mouse.
3. Continue to hold the left mouse button and draw as necessary .
4. Release the left mouse button to end the freehand drawing.

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Ellipse Annotation

Creates an unfilled ellipse on the image. This feature is used to show a region of interest on the image.

1. Select the **Ellipse** button from the annotations toolbar.
2. Left mouse click on the area of the image to start the ellipse.
3. Move the mouse to where the ellipse will end.
4. Left mouse click to set the ellipse in place.

Rectangle Annotation

Creates an unfilled box on the image. Used to show a region of interest on the image.

1. Select the **Box** button from the annotations toolbar.
2. Left mouse click on the area of the image to start the box.
3. Move the mouse to where the box will end.
4. Left mouse click to set the box in place.

Text Annotation

Creates a text annotation on the image.

1. Select the **Text** button from the annotations toolbar.
2. Left mouse click on the area of the image to set the upper left corner of the text box.
3. Move the mouse to where the text box will end.
4. Left mouse click to set the size of the text box.
5. The text box will become white with a flashing cursor. Type text.
6. Click anywhere on the image to end the text box.

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Measurement Annotation

Used to measure the distance of a straight line on the image. This can be in inches, cm, mm and pixels.

1. Select the **Measurement** button from the annotations toolbar.
2. Left mouse click on the image to set the first endpoint of the measurement.
3. Move the mouse to where the endpoint of the measurement will be.
4. Left mouse click to set the endpoint of the measurement. The measurement will appear below the line.
5. To place the text in this default position left mouse click on the same point again. To move the text out of the way, move the mouse to the desired location and left mouse click to set the placement of the text.

Calibration

The calibration tool compensates for image magnification. It will allow the user to take an object of known length (a coin, ruler, etc that is not susceptible to measurement distortion), draw a linear measurement, and assign a length value such that measurements made with other tools will be accurate in the unit of measurement.

Angle Measurement Annotation

Used to draw an angle on the image.

1. Select the **Angle Measurement** button on the annotations toolbar.
2. Left mouse click on the image to set the vertex (center point) of the angle.
3. Move the mouse to where the endpoint of the first vector will be.
4. Left mouse click to set the endpoint of the first vector.
5. Move the mouse to where the endpoint of the second vector will be.
6. Left mouse click to set the endpoint of the second vector. The angle measurement will appear.
7. To place the angle text in this default position left mouse click on the same point again. To move the angle text out of the way or to change angles, move the mouse to the desired location and left mouse click to set the placement.

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Cobb Angle Annotation

Used to draw a cobb angle on the image.

1. Select the **Cobb Angle** button on the annotations toolbar.
2. Left mouse click on the area of the image to set the first endpoint of the first line.
3. Move the mouse to where the second endpoint of the first line will be.
4. Left mouse click on the area of the image to set the second endpoint of the first line.
5. Left mouse click on the area of the image to set the first endpoint of the second line.
6. Move the mouse to where the second endpoint of the second line will be.
7. Left mouse click on the area of the image to set the second endpoint of the second line. The angle measurement will appear.
8. To place the angle text in this default position left mouse click on the same point again. To move the angle text out of the way, move the mouse to the desired location and left mouse click to set the placement.

Heart to Lung Ratio Annotation

Used to find the heart to lung ratio.

1. Select the **Heart to Lung Ratio** button on the annotations toolbar.
2. Left mouse click on the area of the image to set the first endpoint of the first line.
3. Move the mouse to where the second endpoint of the first line will be.
4. Left mouse click on the area of the image to set the second endpoint of the first line.
5. Left mouse click on the area of the image to set the first endpoint of the second line.
6. Move the mouse to where the second endpoint of the second line will be.
7. Left mouse click on the area of the image to set the second endpoint of the second line. The ratio measurement will appear.

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Center Line Annotation

Used to find the center line of four points.

1. Select the **Center Line** button on the annotations toolbar.
2. Left mouse click on the area of the image to set the first point.
3. Left mouse click on the area of the image to set the second point
4. Left mouse click on the area of the image to set the third point.
5. Left mouse click on the area of the image to set the fourth point. The center line of these four points will be drawn on the image.

Center Point

Used to find the center between two user settable points.

1. Select the **Center Point** button on the annotations toolbar.
2. Left mouse click on an area to set the first point (it will appear as an X).
3. Left mouse click on an area to set the second point (it will appear as an X).
4. A third, large X will appear in the center of the two other Xs.

Probe

Used to view the X & Y pixel coordinates and the grayscale value for the point.

1. Select the **Probe** button on the annotations toolbar.
2. Move the mouse to the desired point.
3. Left mouse click and hold, and the X & Y coordinates and gray scale value will be displayed.

   Note: While holding down the left mouse button, the user can drag the mouse pointer and the values will change.

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Scale

Used to indicate measures (like increments on a ruler) on the top, bottom, or sides of the image.

1. Select the **Scale** button from the annotations toolbar.
2. Set the desired parameters in the dialog box.
3. Click **Ok**, and the measures will appear on the image.

Templates

Used to load and draw custom templates.

Select the **Templates** button on the annotations toolbar.

Measurements Units

Used to toggle between the current measurement units. inch cm pix mm

Delete All Annotations

Used to permanently remove all annotations from the currently selected images.

Select the **Delete All Annotations** button.

Deleting Annotations Individually

1. Select the annotation.
2. Right mouse click on the annotation.
3. Select **Delete** from the pop-up menu.

Selecting Annotations

1. Move the mouse over the annotation. The mouse pointer will become a pointing hand.
2. Left mouse click on the annotation to select it. The annotation will become a dotted line with several handles.

Moving Annotations

1. Select the annotation.
2. Move the mouse over the annotation onto any part of it except the handles (i.e. small boxes). The icon will change to the moving annotations icon.
3. Left mouse click on the annotations and drag it anywhere on the image.

Resizing Annotations

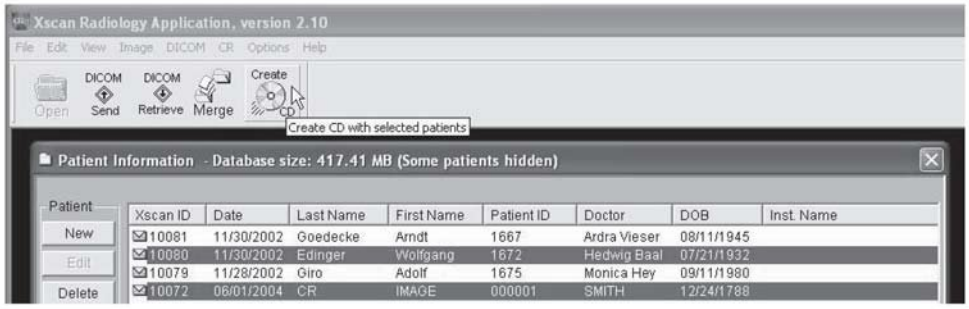
1. Select the annotation.
2. Move the mouse over the annotation (onto any of the handles). The icon will change to the resizing annotations icon.
3. Left mouse click on the annotation handle and drag it anywhere on the image.

Note: For measurement annotations the size/angle will change accordingly. One of the handles provided for measurement annotations will also allow the user to reposition the text.

6.7 Patient CD/DVD Creator

Note: CD/DVD Creation Software is *NOT* part of the QPC XSCAN32 Software. This section is optional for users who already have CD/DVD Creation Software already installed on their respective PCs.

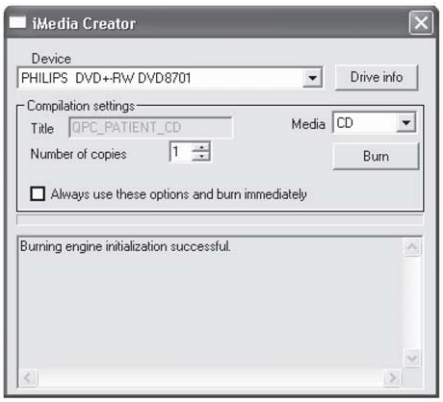
1. In the patient information window select the patient(s) to be placed on the CD/DVD. To select multiple patients hold down your Ctrl key on the keyboard and using your left mouse button select each patient.
2. Click on the Create CD button in the toolbar. Selected patients will be copied into the patient CD layout folder (C:_XscanCDFolder).


Xscan Radiology Application, version 2.10
File Edit View Image DICOM CR Options Help
Open
DICOM Send
DICOM Retrieve
Merge
Create CD
Create CD with selected patients
Patient Information - Database size: 417.41 MB (Some patients hidden)
Patient
New
Edit
Delete
Xscan ID Date Last Name First Name Patient ID Doctor DOB Inst. Name
10081 11/30/2002 Goedecke Arndt 1667 Ardra Vieser 08/11/1945
10080 11/30/2002 Edinger Wolfgang 1672 Hedwig Baal 07/21/1932
10079 11/28/2002 Giro Adolf 1675 Monica Hey 09/11/1980
10072 06/01/2004 CR IMAGE 000001 SMITH 12/24/1788

Note: If this is the first time using the patient CD creator feature a prompt will appear indicating the user to browse for the location of the DVD/CD Creator software. Alternatively, if Nero software is already installed on the PC, select the option *Use Nero scripting to create CD/DVD.*

Using Nero Scripting

1. When the software has finished initializing and copying the patient CD, the Nero scripting dialog will appear.
2. Select the device to burn to. (if multiple drives are present)
3. Put the CD/DVD into the drive and select the **Burn** button.
4. The drive will eject media once it has completed. Click the **Burn** button again to make multiple copies (or alternatively set the Number of copies option before burning).



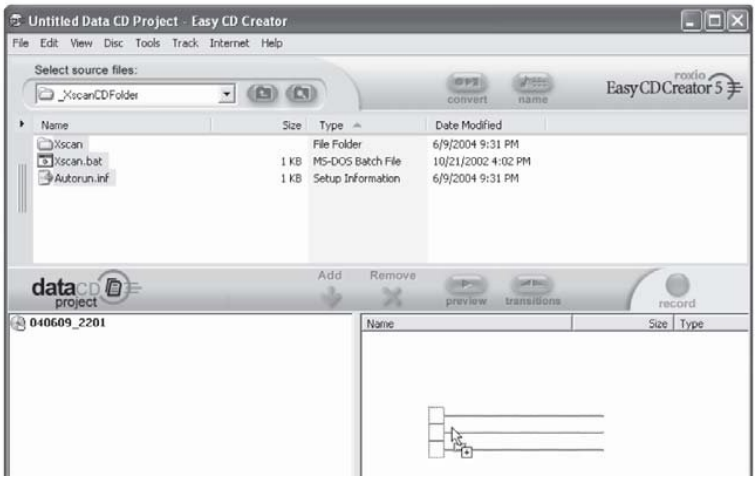
Using other CD/DVD recording software

1. When the software has finished initializing and copying the patient CD, a 'Ready to create CD' prompt will appear, select **Yes**.

2. The DVD/CD Creator software will open. Select source folder *C:_XscanCDFolder* and drag the contents of the Xscan CD Folder folder and two files into the data project region.
   Note: The user must not create their own folders on the CD/DVD. The autorun.inf file must appear in the top level (under the root directory) of the CD/DVD.

Select source folder location C:_Xscan CDFolder

The following folders and files are to be copied onto a DVD/CD:
* Xscan folder
* xscan.bat
*Autorun.inf



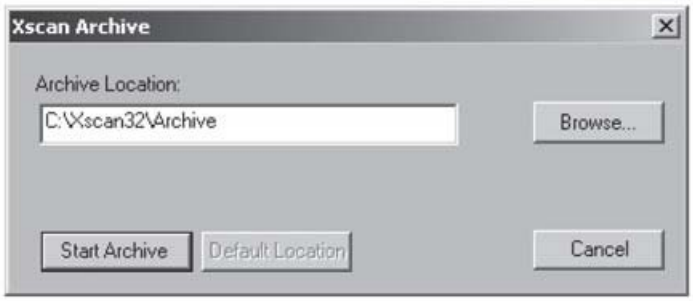
3. Click the Record button in CD Creator software.

6.8 Archiving QPC XSCAN32 Database

1. Open XSCAN.

2. Go to *File* → *Archive Database*.
3. The user is asked to confirm the archive process, click **Yes**.

4. Select the location to archive the database to.



5. When archiving is completed a message will appear informing the user of the archive location.
   Note: the current date and time is used for the folder name of the archived database.

6.9 Restoring Archived Database

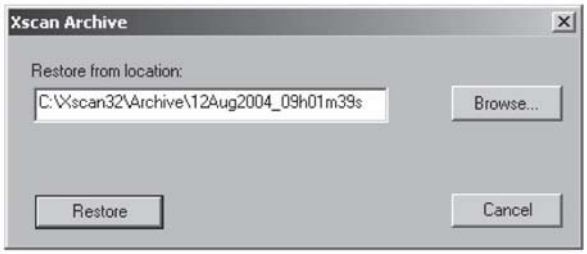
⚠ WARNING: It is strongly recommends backing up data to non-spinning media CD/DVD or an archive (PACS) with RAID capability to ensure no loss of data.

1. To restore an Archive, go to *File* → *Restore Archive*.

   Note: The current database in QPC must be empty.

Archive Xscan
Archive (C:\Xscan32\Archive\24Aug2004_09h12m28s) is now complete. The serial number of your dicom module will be changed.
If using external storage media use the following label for future reference:
'24Aug2004_09h12m28s'
OK

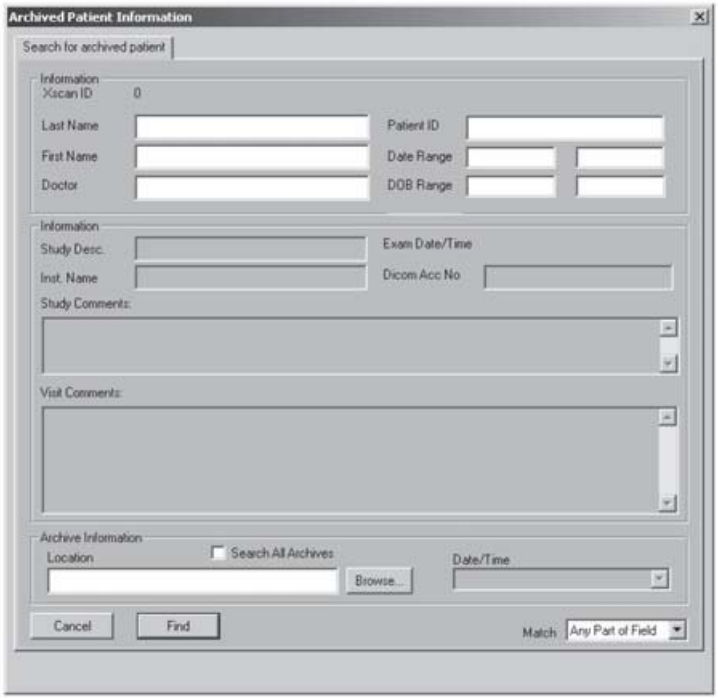
2. Select the location of the database to restore.



6.10 Searching QPC XSCAN32 Archive

1. Go to **File** → **Search Archives**.
2. To search a particular archive, select the archive location by selecting the **Browse** button.
3. Under Date/Time, select from the list of valid archives

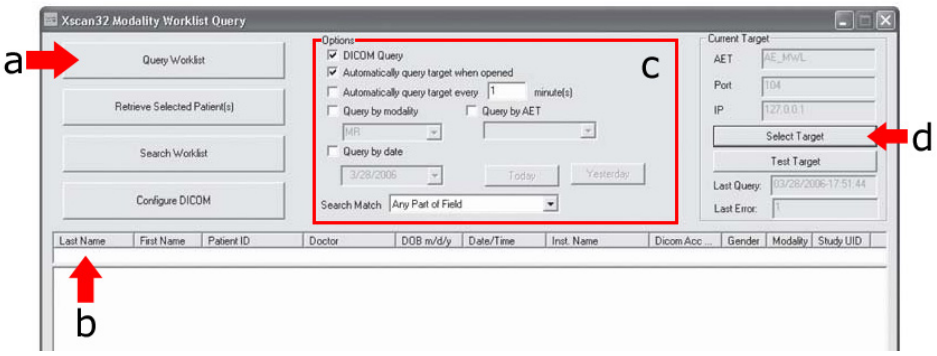
4. The user can either:
   (a) Select **Find** to open the entire database.
   (b) Enter search values into the patient information fields. If the database contains a patient or multiple patients that match the criteria the database will be opened with the patient(s) selected. If the patient(s) could not be found you will be returned to the search dialog. For example, the user could enter "Th" in the First name field to find values such as "Thomas" and "Thelma."
5. The user can refine the search further by changing the Match field.



6.11 Modality Worklist Query

Note: For more information, please refer to the software section on creating patients.

1. To activate the Modality Worklist Query interface click on the **Worklist Query** button in the *Patient Information* window.
2. The QPC XSCAN32 Modality Worklist Query dialog will open. Click on **Query Worklist** button to query the HIS/RIS system.



(a) Query Worklist Button

(b) Search fields. For example, to search for all patients with the last name Smith, select the Last Name field in the search box and type Smith and then click enter. Only the patients that have a last name of Smith will appear.

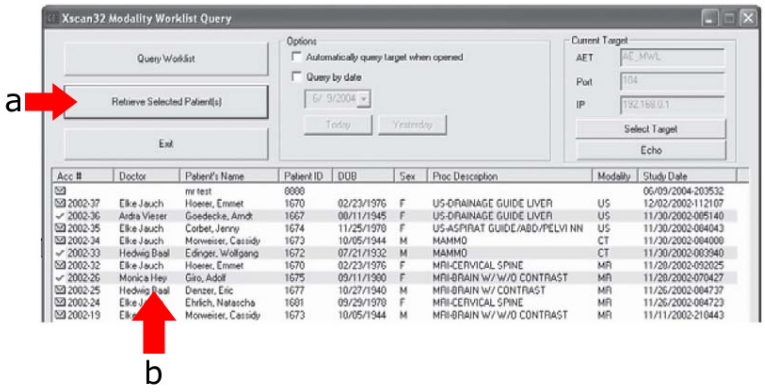
(c) The user can also specify query options such as:

- querying automatically when worklist query dialog is opened.
- query on a timer (i.e. every 5 minutes)
- query by modality (i.e. CR patients only)
- query by AET
- query by Date (i.e. today's date only)

(d) Click here to select the target to query.

Note: The user will only need to do this once.

3. The queried patients will appear in the patient list. Click on **Retrieve Selected Patient(s)** button to retrieve the patients into XSCAN32 database.



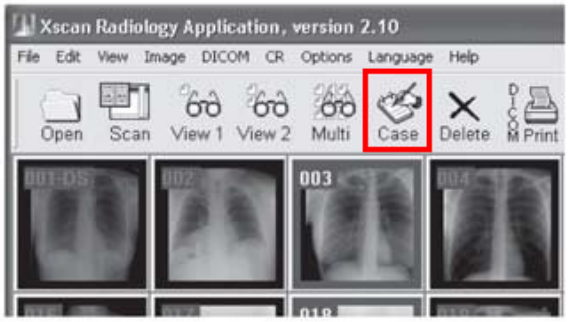
(a) Retrieve Selected Patient(s) button.

(b) Queried patients appear in the patient list. An envelope indicates a patient that has not been retrieved. A check mark indicates a patient that has been retrieved.

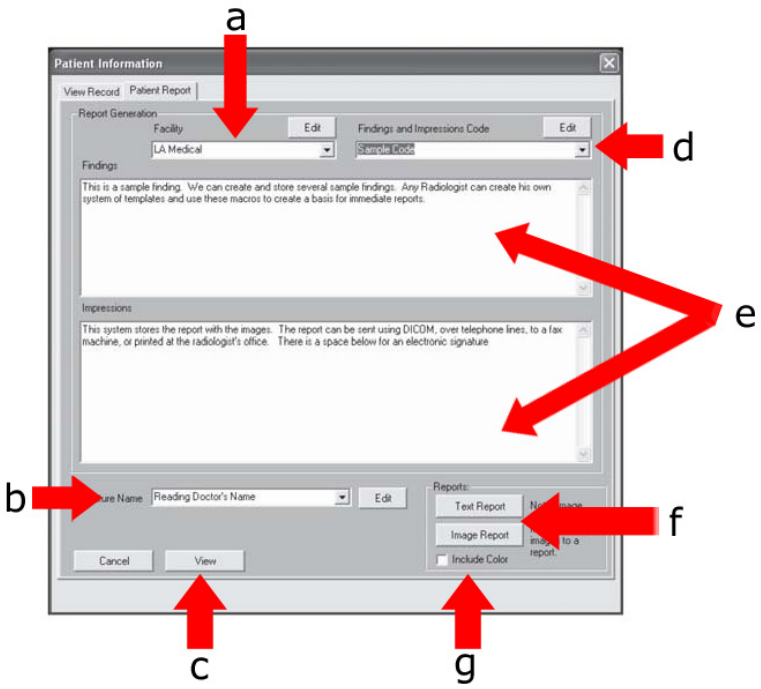
4. The patients will appear in the QPC XSCAN32 patient information window when retrieved from the Modality Worklist Query dialog.

6.12 Report Writer

1. Open a patient study. Select the desired images to report. The user can have up to four images on one report (deselect all images if the user does not want to include any images in the report).
2. Click on the **Case** button in the toolbar.


Xscan Radiology Application, version 2.10
File Edit View Image DICOM CR Options Language Help
Open Scan View 1 View 2 Multi Case Delete DICOM Print
001-DS
002
003
004

3. Select existing or add a New Facility.
4. Select existing or add a new Findings and Impressions Code. Add patient specific information to the Findings and Impressions fields.
   Note: QPC XSCAN32 supports multiple page reports.
5. Select Signature Name for the reading doctors signature.
6. Click on the **Image Report** button
7. Click the **View** button to view the report.



(a) Facility field

(b) Signature/Name field

(c) View button

(d) US Color Option. To include color images, select this option.

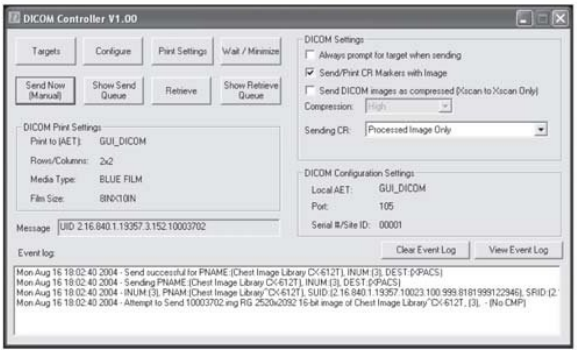
(e) Image Report button

(f) Patient Specific Findings and Impressions fields

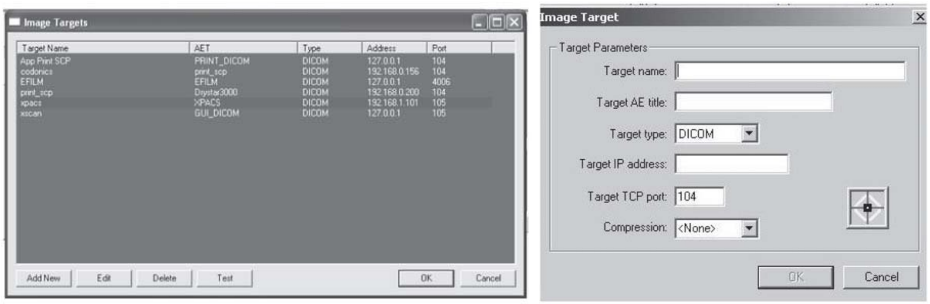
(g) Findings and Impressions Code field

6.13 Setting Up DICOM Send

1. Open QPC XSCAN32.
2. Open DICOM Controller V1.00.
   Note: If the user doesn't have the window in the task bar open, go to *Options* → *Preferences* → *Image Transfer Tab* → *Use DICOM to transfer images*.



3. Click on the **Targets** button and the Image Targets dialog will appear.

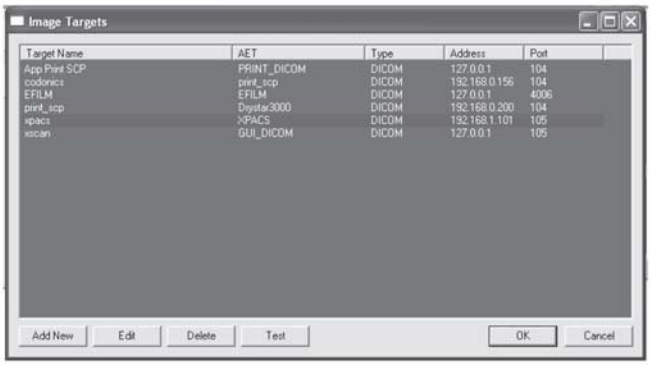


6.14 DICOM Send

1. Open a patient study for viewing and select the image icons to send.

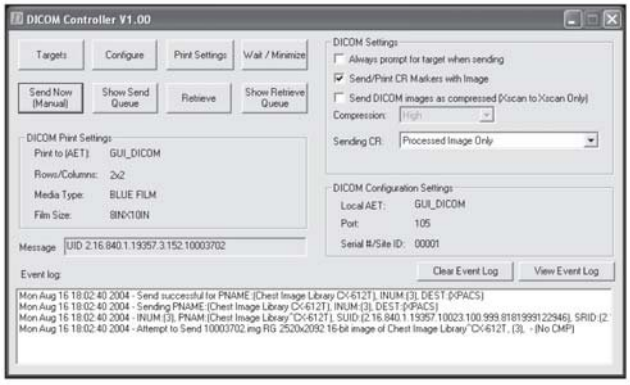
2. Click on the **DICOM Send** button in the toolbar.

Note: This will only appear in the toolbar when the *Use DICOM to transfer images* option is selected in the *Image Transfer* preferences tab.



3. The *Image Targets* dialog will appear. Select the target(s) to send the selected images to.

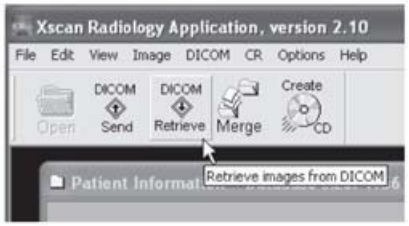
4. Select **OK** to confirm the selected target(s).



5. The status of the send will appear in the Event Log of the DICOM Controller window.
   Note: If sending to another XSCAN32 application the user can turn compression on and select a compression type (low, medium, high).

6.15 DICOM Retrieve

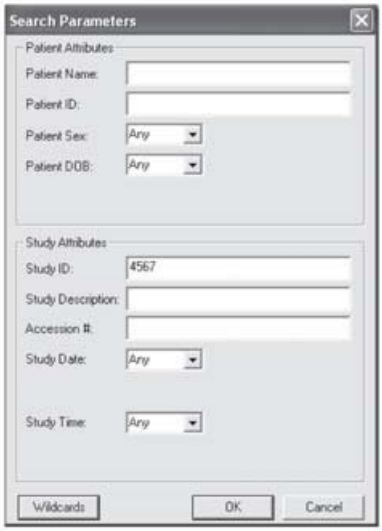
1. Open QPC XSCAN32
2. Click on the **DICOM Retrieve** button in the toolbar.
   Note: This will only appear in the toolbar when the user has the *Use DICOM to transfer images* option selected in the *Image Transfer* preferences tab.



3. The Image Targets dialog will appear. Select the target to retrieve images from.
4. Select **OK** to confirm the selected target.

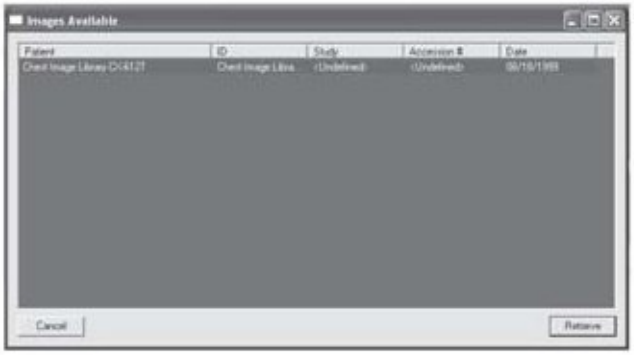
5. If the user has selected the Search Parameters option, then enter any relevant patient or study information. For example, to search on all patients with the name John Smith, type John Smith into the Patient Name field. To search on all patients with the last name Smith, type *Smith* into the Patient Name field. Where the asterisk * is used as a wildcard. To search on Study ID 12345, type 12345 into the Study ID field or 1234* to bring up all study ID's starting with 1234.

   Note: It is not necessary to fill out all fields. For a description of the valid wildcards click on the **Wildcards** button.



6. The list of matching patients will be returned.

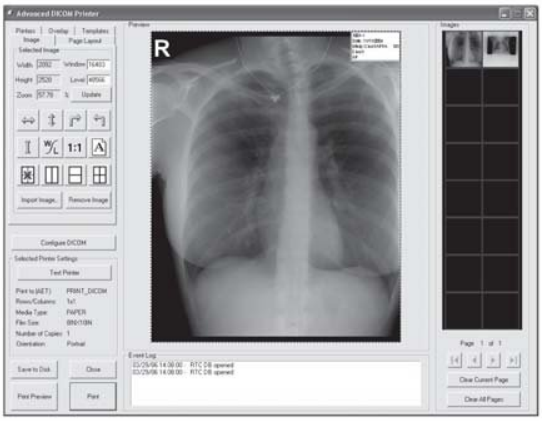
7. Select the patient(s) to retrieve from the list and click on the **Retrieve** button.



6.16 Advanced DICOM Printer

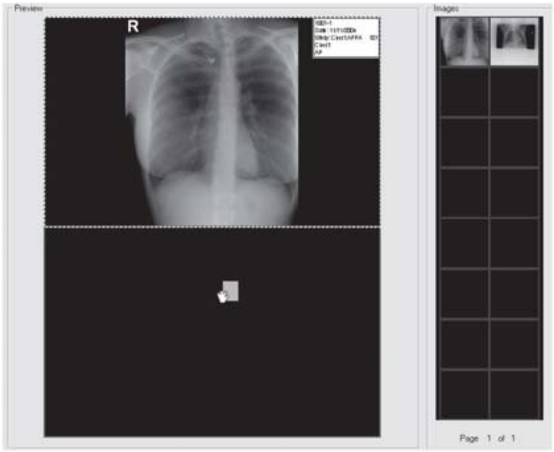
Select images for printing

In QPC XSCAN32, select the images to print in the image icon view, then select **DICOM Print** from the toolbar. The Advanced DICOM Printer application will open with the selected images imported into the right hand side. Alternatively, the user can select the region in the preview window where the user wants the image, then select the **Import Image** button.



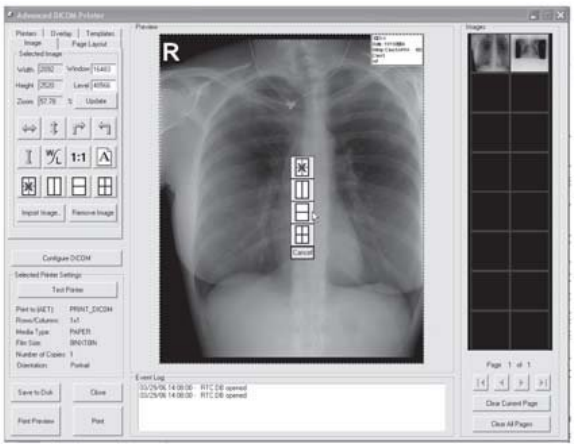
Drag and Drop Images

To drag images into the print region hold the left mouse button down on one of the image icons on the right hand side and drag it into the preview window. A dragging cursor will appear as the user drags the image from the image icon window to the preview window. If the user is out of the accepted region for dropping, a cursor will appear letting the user know that this is not a correct region to drop the image into.

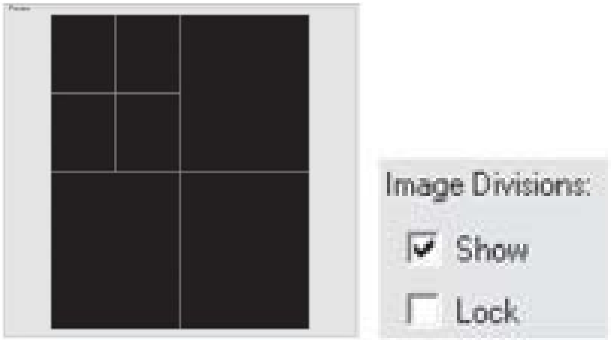


Split the preview window into regions

To split the preview window the user needs to first select the region to split. For example, if there are currently no divisions in the preview window then click anywhere in the preview window and a green line will appear around the window. This will enable the image division buttons. Alternatively, the user can press Shift+ right mouse click inside the preview window region to split it. A pop-up menu will appear with these division buttons (as the image to the right shows).



Select one of the image division buttons and the preview window will be divided into regions. To split one of these regions again select the specified region and again select one of the image division buttons. The user can drag and drop images at any stage. If the user has an image in the region that is desired, the interface will automatically move the image into the split regions. To remove a division, click in the region that has been split and click on the no-division button.



The user can show and hide the image divisions by clicking on the *Page Layout* tab, then click **Show and Lock** under *Image Divisions*. The user can view the current print settings by looking at the left hand side of the *Advanced DICOM Printer* dialog. To change these settings, or to view more settings, click on the *Printers* tab.

Manipulating Images in the Preview Window

The Advanced DICOM Printer allows the user to flip, rotate, zoom, pan, invert and window/level images. To manipulate the images select the image in the preview window (the selection will be shown by the green box surrounding the image).

The user can flip, rotate and invert by using the buttons on the left hand side of the DICOM Printer dialog.

The user can zoom by using the right mouse button on the selected image.

To pan the image use the left mouse button on the selected image.
Note: The user can only pan the image when it is zoomed in. To window/level the user can either use the middle scroll button on the mouse or type the required window/level into the edit boxes on the left hand side of the *Advanced DICOM Printer* dialog. Then press the **Update** button to change the window/level for the image.

The user can also press the **1:1** button to tell the *Advanced DICOM Printer* dialog to print images at 1:1 resolution.

The user can use the *Orientation* button to change from landscape to portrait view.

Change margins

The margin tab permits the user to specify, in English or metric units, the size of the borders on the printed image. The top and bottom borders on the page can be adjusted independently of the borders for the left and the right hand side of the page.

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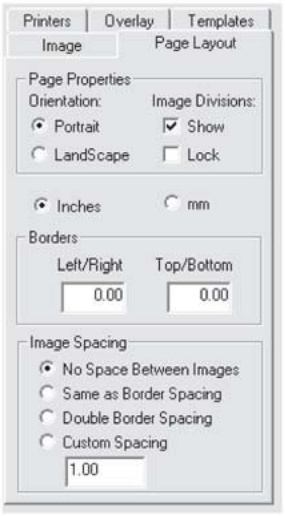


Additionally, the user has the option to control the internal margins, which define the amount of space left between individual frames on a page with multiple images. Internal margins are defined as multiples of the print page border size.

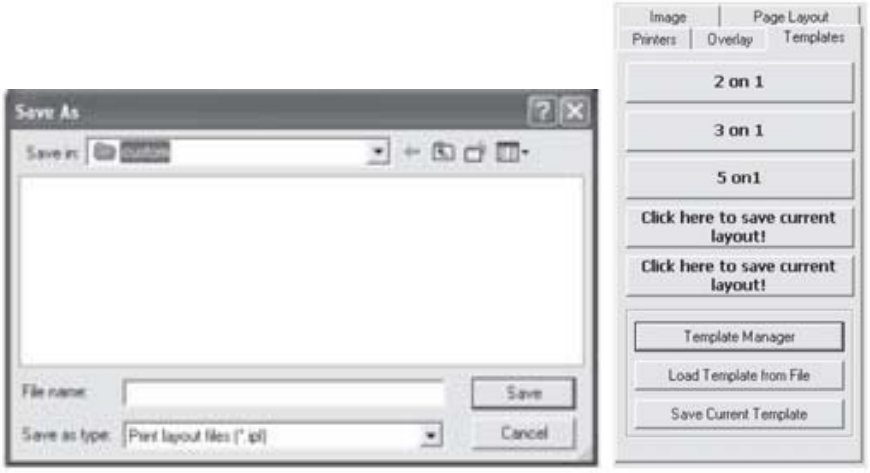
By default, internal margins are the same size as the borders, with image margins on, the left and right hand side of each frame are equal to the left and right hand borders. Margins on the top and bottom of each frame are equal to the top and bottom borders of the printed page.

If the user intends to cut individual frames out of the printed page, it is recommended that internal margins are set to twice that of the page, which will give a uniform border size on the individual image segments. If it is necessary to maximize the amount of space on the printed page, the internal margins can be turned off altogether.

Saving and Loading Print Layout

The *Templates* tab allows the user to save and load pre-defined print layouts. There are five user defined layouts. Set up the layout on the preview window and then select one of the buttons labeled **Click here to save current layout!** The user will be prompted for a title.

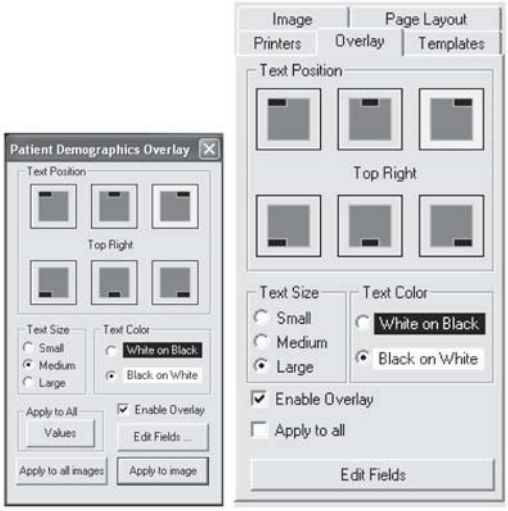
To save more layouts click on the **Save Current Template** button. here the user can set a file name for the Layout. The default save location is $C:\backslash XScan32\backslash Layout\backslash Custom$.



Adding patient demographics

Select the *Overlay* tab to bring up the patient demographic layout options.
From here the user can select:

- Text position (includes top left, top center, top right, bottom left, bottom center, bottom right),
- Text size (includes: small, medium, large),
- Text color (includes: white on black, black on white).



The user has the option to apply the current settings to every image in the print view or only in the currently selected image via the **Apply to all images** button or the **Apply to image** button.

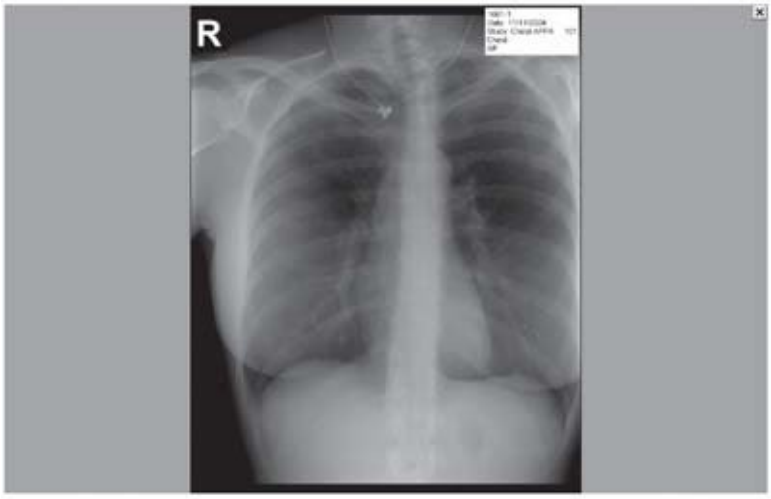
By selecting the **Enable Overlay** check box the user can turn patient demographics overlay on and off for all images. The user can also edit the fields that are available on patient demographics overlay by clicking on the **Edit Fields** button.
From here the user is able to:

- Select a field and determine what kind of a delimiter following the field (includes: none, space, tab, comma, newline, custom).
- Change the position of the fields with the up and down arrows.
- Remove or display a field by selecting the Print Field check.
- Print the title for the field (i.e. the title "Date:" would be printed in front of the date field).

After editing the fields select the Done button.

Print preview

To see a print preview, select the **Print Preview** button.

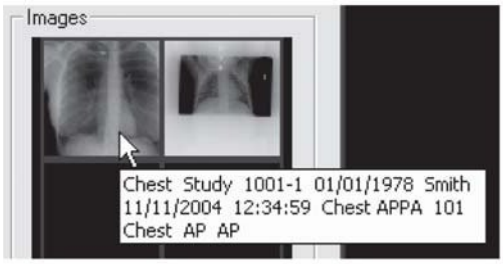


Print an image from DICOM Printer

When the user has finished dragging and dropping the desired images onto the preview window and manipulating size, position and window/level (if necessary), then press the **Print** button in the bottom left hand corner of the *DICOM Printer* dialog. Please ensure all the printer settings are correct first.

Patient Demographics for Icons

When the cursor is over the icon bank, Advanced DICOM Print will display the demographics for the image.



Multiple Icon Pages

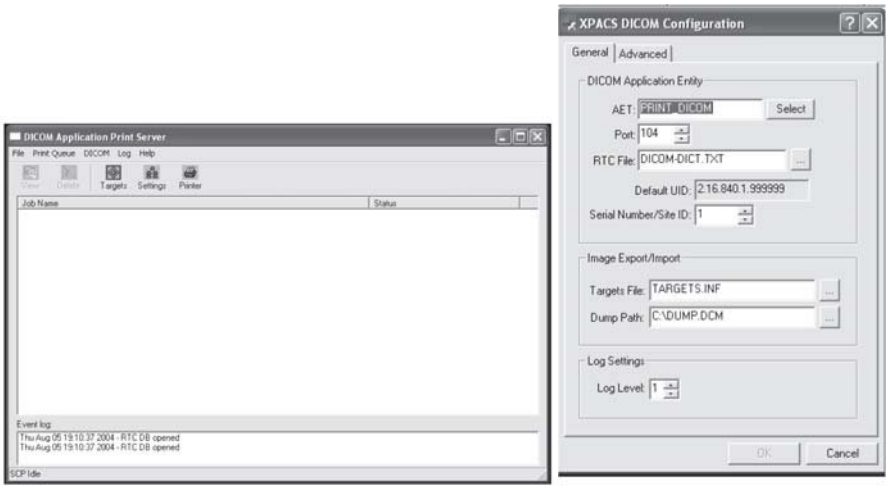
Advanced DICOM Print has an unlimited number of icons that can be loaded. However, the PC's memory is a restriction.

To clear the current page of icons, click on **Clear Current Page** button. To clear all the pages of icons and preview window, click on **Clear All Pages** button.

To move between pages and move to first and last pages click on the arrow buttons.

6.17 Printing to a Windows Printer

1. To configure XSCAN to open the DICOM Application Print Server, go to *Options* → *Preferences* → *Image Transfer* tab. Select the option *Use Windows to DICOM Printer*. *DICOM Print* must also be selected.

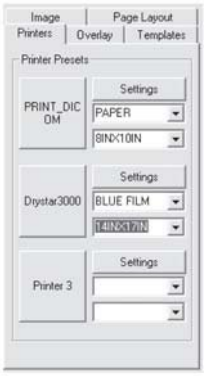


2. The Dicom Application Print Server will print to the default windows printer. In the *Windows Control Panel* select "Set As Default Printer" to the desired printer. The print server uses this default printer.

3. To change the AET, port number or any other information for the DICOM Application Print Server, click on the **Settings** button.

4. To print to the DICOM Application Print Server, set the AET in the Advanced DICOM Printer to the DICOM Application Print Server's AET details.

5. Select the images in QPC XSCAN32 to print and then select the DICOM Print button. Optimize the images in the QPC XSCAN32 software and select print.



6.18 Troubleshooting Windows to DICOM Print

1. Make sure there is only one instance of them open in Task Manager. To open Task Manager (Click on Start Menu, Click Run, Type in "taskmgr" Click OK). Close QPC XSCAN32. Look for DCM.exe, DICOMMultiPrinter.exe, AppPrintSCP.exe. If any of these are open please select and click on End Process. Reopen QPC XSCAN32.

2. Check target information for both applications (Advanced DICOM Print and DICOM Application Printer Server). Select Advanced DICOM Print and click on Configure DICOM button. The DICOM Configuration dialog will appear. The target details for this application are usually: AET: ADV_PRINT DICOM, PORT: 4008, IP: 127.0.0.1, Click on Select to see full details of this target. If Advanced DICOM Print has not been entered as an item in the targets list then please add it with the above details. Then select this new target and click OK. Click OK on the DICOM Configuration to save settings. Close QPC XSCAN32 and reopen Select DICOM Application Printer Server and click on Settings button. The DICOM Configuration dialog will appear. The target details for this application are usually: AET: PRINT DICOM, PORT: 3008, IP: 127.0.0.1, Click on Select to see full details of this target. If DICOM Application Printer Server has not been entered as an item in the targets list then please add it with the above details. Then select this new target and click OK. Close QPC XSCAN32 and reopen. Go to Advanced DICOM Print and Test Printer, assuming that you have the DICOM_PRINT target selected as the default printer to print to. To set it as the default, select the Printer tab in ADVANCED

DICOM PRINT and select DICOM_PRINT button. Try printing. If fails recheck that multiple instances are not open in task manager.

3. Make sure no options are selected that should not be selected. If the printer does not support border properties then deselect. If the printer does not support background properties then deselect. If the printer does not support 12-bit images then deselect. Try printing. If fails recheck that multiple instances are not open in task manager.

4. Make sure correct print options are selected. If printing to a windows printer you cannot have BLUE_FILM selected (unless it has BLUE_FILM). You need to select PAPER. The default for a regular windows printer for paper size is 8Inx12IN. Try other options if this fails. If you have the wrong paper size selected it will bring up a failed message in DICOM Application Printer Server and the message log will say incorrect paper size.

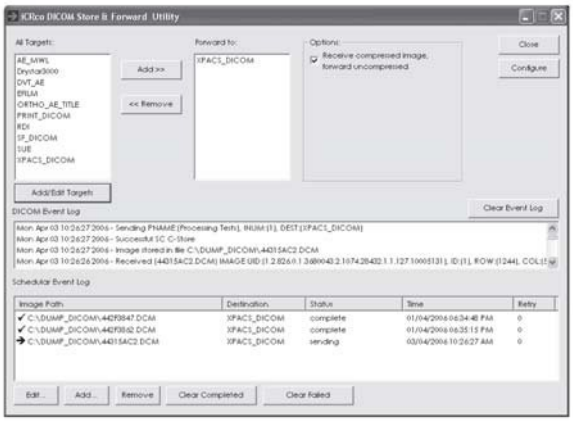
6.19 DICOM Store and Forward Utility

Setting up targets for forwarding

1. Under the *All Targets* list, select the target(s) to forward.

2. Click the **Add** ≫ button.

3. To remove target(s) from the forward to list, select the target under the *Forward To* list, then click the ≪ **Remove** button.



Configuring Store and Forward Utility DICOM settings

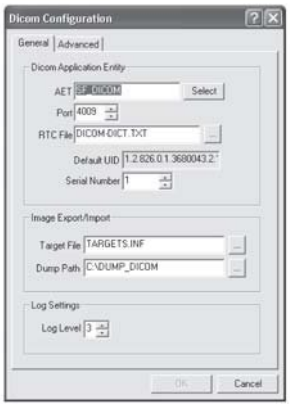
1. Click the **Configure** button.

2. The default DICOM settings are:

- AET SF_DICOM
- Port: 4009

Sending to Store and Forward Utility

1. From the sending application, select the images to send.
2. Then select the *Store and Forward Utility* as the DICOM target to send to (the AET of SF_DICOM). The images will appear in the Scheduler Event Log.
3. The Store and Forward Utility will keep retrying to send images if failed.
4. The status will be updated with sending, complete or transfer pending.



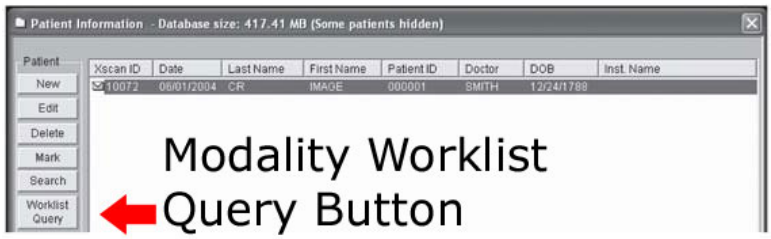
Options

The Store and Forward Utility defaults to receiving compressed images and forwarding them on decompressed. If you want to receive compressed images and send them on compressed to the PACS system, then deselect the option *Receive compressed image, forward uncompressed*.

Note: The Store and Forward Utility may report the status as complete but the PACS system may still reject the image. If the image has an incorrect DICOM tag or it is a duplicate study, series or image UID. Always confirm that the PACS system has received the image before deleting images from the capture station.

6.20 HL7 Configuration

1. Open QPC XSCAN32.
2. In the *Patient Information* window, click **Worklist Query** button to open the *Modality Worklist Query* window.



3. In the *Modality Worklist Query* windows, click **Options**.
4. In the *Options* dialog box, check the radio dialog button for **HL7 Listen**.
5. Check the radio dialog boxes for *Mark retrieved patients* and **Automatically Query target when opened**.
   Note: The user may also check the radio dialog box for **Automatically Query target every x minutes**, and set the time interval for the worklist query.
6. Click **Ok**. A new window will open called *HL7 DICOM Worklist Parser Port: 6000*.
7. In the *HL7 DICOM Worklist Parser* window, ensure that the port is 6000. If it is not, click on *File* → *Set Port* In new window, change port to 6000, then click **Ok**.
8. In the HL7 DICOM Worklist Parser *File* menu, make sure there is a check next to *Listen*. If there is not, click on **Listen** in the *File* menu to enable parser listening.
9. Make sure that in *System* → *HL7 Message Defaults*, that all boxes are checked.
10. Leave window open and let the parser retrieve HL7 messages. When an HL7 message is received, the window will have parsed text in it. Multiple messages can be received while window is open.
11. Click the **Query** button to get message information (If messages are not automatically queried).
12. Highlight messages that you want to retrieve and click **Retrieve**.

6.21 QPC XSCAN32 Keyboard Shortcuts

Function Keys

F1	Rotates an image clockwise.
F2	Rotates an image counter-clockwise.
F3	Horizontally flips an image.
F4	Vertically flips an image.

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F5	Inverts an image.
F7	Opens and closes the Window/Level dialog.
F8	Opens and closes the CR Processing dialog.
F9	Resets the window/level of an image to the original window/level setting.
Shift + F8	Opens and closes the Annotations dialog.
Ctrl + F8	Turns the patient information overlay on and off.
F11	Opens QPC XScan32 Help.
F12	Selects and deselects all image icons.
Ctrl + A	Selects and deselects all image icons.
Ctrl + D	Deletes the selected image icons.
Shift + P	Opens preferences.
Shift + S	Adds images to the send queue.
Ctrl + S	Sends queued images.
Shift + Q	Adds images to the send queue and sends the queued images.
Shift + R	Imports received images immediately.
Right Arrow	Moves to the next image.
Left Arrow	Moves to the previous image.
Down Arrow	Moves to the next row of images.
Up Arrow	Moves to the previous row of images.
Page Down	Moves to the next page.
Page Up	Moves to the previous page.

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